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An Examination of Recidivism in a Population of Canadian Sex Offenders

Audrey F. Wexler

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CONTENTS

List of Tables and Figures	v
Abstract	ix
Acknowledgments	xi
 CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW	 1
Sexual offenders: Defining the population	3
Theoretical Issues of Sexual Offending	5
Evaluating Rates and Risk Factors of Recidivism	14
<i>Methodological Issues</i>	14
<i>Rates of Recidivism</i>	22
<i>Predicting Recidivism</i>	30
The Present Study	34
<i>Overview of Study</i>	36
 CHAPTER 2: METHOD	 40
Participants	40
Measures	42
<i>Medical Records</i>	42
<i>Phallometric Tests</i>	45
<i>Paper and Pencil Inventories</i>	50
<i>Outcome Data</i>	53
<i>Description of Recidivism Measure</i>	53
<i>Calculation of Time At Risk</i>	54

Procedures	56
Chapter 3: RESULTS	58
Section Overview	58
<i>Statistical Treatment of Data</i>	58
Part 1: Recidivism	59
<i>Comparison of Criminal Offense Category by Sex OffenderType</i>	59
<i>Analysis of Exposure Time</i>	63
<i>Summary</i>	72
Part 2: Personal characteristics, criminal history, psychological, and physiological risk factors of recidivism within each category of sexual offenders	73
Comparison of Recidivists and Nonrecidivists	73
<i>Demographic, Historical, criminal offense characteristics, Physiological, and Psychological Variables for Recidivists and Non-Recidivists: Rapists</i>	75
<i>Demographic, Historical, criminal offense characteristics, Physiological, and Psychological Variables for Recidivists and Non-Recidivists: Extra-Familial Child Molester Group</i>	85
<i>Demographic, Historical, Criminal Offense Characteristics, Physiological, and Psychological Variables for Recidivists and Non-Recidivists: Incest Offenders</i>	99
Prediction of Recidivism	114
<i>Rapist</i>	116
<i>Extrafamilial Child Molester Group</i>	129
<i>Incest Offenders</i>	145

CHAPTER 5: DISCUSSION	165
Objectives	165
<i>Hypothesis One: The percentage of recidivism varies as a function of the sex</i>	
<i>Offender group and the type of criminal charge</i>	165
<i>Hypothesis Two: Percentage of recidivism of each offender type will</i>	
<i>Vary as a function of the length of the follow-up period</i>	169
<i>Hypothesis three: Recidivists within each group of sex offenders will be</i>	
<i>significantly different than non-recidivists with respect to personal</i>	
<i>characteristics, criminal history, psychological, and physiological factors</i>	172
<i>Hypothesis four and five: Prediction of sexual recidivism and violent</i>	
<i>Recidivism within each category of sex offenders</i>	178
Limitations and Future Directions	181
<i>Limitations</i>	182
<i>Future Directions</i>	185
CHAPTER 6: CONCLUSION	189
APPENDIX A :	
Consent Form	190
APPENDIX B:	
An example of a CPIC report	192
REFERENCES	194

LIST OF TABLES AND FIGURES

Tables

Table 1.	Demographic, Historical and Index Offense	43
Table 2.	Proportion of Recidivism as a Function of Criminal Offense Category and Offender Type	60
Table 3.	Between-Group Comparisons of Recidivists for Extra-familial Child Molesters, Rapists, and Incest Offender Groups as a Function of Criminal Offense Category	62
Table 4.	Study Variables and Their Relationship to Sexual Recidivism: Rapist Group	76
Table 5.	Study Variables and Their Relationship to Violent Recidivism: Rapist Group	80
Table 6.	Study Variables and Their Relationship to General Recidivism: Rapist Group	83
Table 7.	Study Variables and Their Relationship to Sexual Recidivism: Extra-familial Child Molester Group	88
Table 8.	Study Variables and Their Relationship to Violent Recidivism: Extra-familial Child Molester Group	92
Table 9.	Study Variables and Their Relationship to General Recidivism: Extra-familial Child Molester Group	96
Table 10.	Study Variables and Their Relationship to Sexual Recidivism: Incest Group	101
Table 11.	Study Variables and Their Relationship to Violent Recidivism: Incest Group	105
Table 12.	Study Variables and Their Relationship to General	

	Recidivism: Incest Group	109
Table 13.	Study Variables Differentiating Recidivists from Non-Recidivists as a Function of Sex Offender Group and Criminal Offense Category	113
Table 14.	Forward Stepwise Logistic Regression Results for Sexual Recidivism: Rapist Group	118
Table 15.	Forward Stepwise Logistic Regression Results for Violent Recidivism: Rapist Group	122
Table 16.	Direct Logistic Regression Results for Violent Recidivism: Final Model Rapist Group	123
Table 17.	Stepwise Logistic Regression Results for General Recidivism: Rapist Group	125
Table 18.	Direct Logistic Regression Results for General Recidivism: Final Model Rapist Group	126
Table 19.	Stepwise Logistic Regression Results for Sexual Recidivism: Extrafamilial Child Molester Group	130
Table 20.	Direct Logistic Regression Results for Sexual Recidivism: Final Model Extrafamilial Child Molester Group	132
Table 21.	Stepwise Logistic Regression Results for Violent Recidivism: Extrafamilial Child Molester Group	134
Table 22.	Direct Logistic Regression Results for Violent Recidivism: Final Model Extrafamilial Child Molester Group	136
Table 23.	Stepwise Logistic Regression Results for General Recidivism: Extrafamilial Child Molester Group	140
Table 24.	Direct Logistic Regression Results for General (Any)	

	Recidivism: Final Model Extrafamilial Child Molester Group	142
Table 25.	Stepwise Logistic Regression Results for Sexual Recidivism: Incest Group	146
Table 26.	Direct Logistic Regression Results for Sexual Recidivism: Incest Group	147
Table 27.	Stepwise Logistic Regression Results for Violent Recidivism: Incest Group	151
Table 28.	Direct Logistic Regression Results for Violent Recidivism: Incest Group	153
Table 29.	Stepwise Logistic Regression Results for General Recidivism: Incest Group	157
Table 30.	Direct Logistic Regression Results for General Recidivism: Incest Group	159
Table 31.	Prediction of Recidivism as a Function of Sex Offender Group and Criminal Offense Category	164

Figures

Figure 1.	Survival Rates of Sexual Recidivism of Groups of Child Molesters, Rapists, and Incest Offenders	65
Figure 2.	Survival Rates of Violent Recidivism of Groups of Child Molesters, Rapists, and Incest Offenders	68
Figure 3.	Survival Rates of General Recidivism of Groups of Child Molesters, Rapists, and Incest Offenders	71
Figure 4.	ROC for two factors (ever married, and psychopathy) in Predicting Sexual Recidivism in a group of Rapists	120

Figure 5.	ROC for four factors (ever married, mental illness in the family, prior general offenses, and psychopathy) in Predicting Violent Recidivism in a group of Rapists	124
Figure 6.	ROC for two factors (age, and prior offenses) in Predicting General Recidivism in a group of Rapists	128
Figure 7.	ROC for four factors (education, excessive use of force, criminal offense charges, and psychopathy) in Predicting Sexual Recidivism in a group of Extrafamilial Child Molesters	133
Figure 8.	ROC for four factors (age at time of assessment, education, prior offense charges, and psychopathy) in Predicting Violent Recidivism in a group of Extrafamilial Child Molesters	138
Figure 9.	ROC for five factors (age at time of assessment, education, age at first offense, prior offense charges, and measure of psychopathy) in Predicting General Recidivism in a group of Extrafamilial Child Molesters	144
Figure 10.	ROC for three factors (age at assessment, degree of alcohol use, and measure of psychopathy) in Predicting Sexual Recidivism in a group of Incest Offenders	149
Figure 11.	ROC of six factors (age at time of assessment, family history of alcohol use, offence influenced by alcohol or drug use, age at time of first offense, degree of alcohol use, and measure of psychopathy) in Predicting Violent Recidivism in a group of Incest Offenders	155
Figure 12.	ROC of six factors (age at time of assessment, family history of alcohol use, offence influenced by alcohol or drug use, age at time of first offense, degree of alcohol use, and measure of psychopathy)	

in Predicting General Recidivism in a group of Incest Offenders	161
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ABSTRACT

This study examined estimates and predictors of recidivism of 587 convicted male sex offenders who had been assessed at the Sexual Behaviors Clinic (SBC) and who were followed over a 20 year period. Subjects were grouped into three broad categories based on the index offense: (1) 85 offenders against female adults (rapists); (2) 206 extrafamilial child molesters (CM); and (3) 295 incest offenders. Demographic information, historical variables, characteristics of the index offence, and clinical information were collected from medical records. Offense data were collected from Canadian Police Information Center (CPIC) records.

The percentage of rapists, CM, and incest offenders who re-offended sexually over the 20 year period was 24.4, 22.8, and 9.8, respectively. The percentage of rapist, CM, and incest offenders that recidivated violently was 37.2, 34.0, and, 20.0, respectively. The percentage of rapists, CM, and incest offenders that committed any new offense was 56.4, and 46.1, 27.5, respectively. The CM group appeared to take the longest to re-offend sexually and violently, and seemed to be at greatest risk to re-offend 10 to 15 years following release.

Offenders who committed a new sexual offence, new violent offence, or any new offence were differentiated by means of univariate analyses. Age of offender, historical criminal factors (e.g., age at first offense, history of prior offenses), and scores on the Psychopathy Checklist-Revised repeatedly differentiated between recidivists and non-recidivists.

Stepwise logistic regression analysis assessed which factors were useful in predicting sexual recidivism and violent recidivism. Sexual recidivism among rapists was best predicted by never being married at time of assessment and the presence of historical charges, whereas violent recidivism was best predicted by marital status,

childhood history, historical criminal charges, and psychopathy. Sexual recidivism among CM was predicted by the number of years of education, high level of force during the initial offence, arousal to deviant and violent activities with children, historical offences, and psychopathy. Violent recidivism was predicted by the age of the offender at the time of assessment, years of education, historical offences, and psychopathy. Sexual recidivism among the incest group was predicted by the offender's age, an index of his alcohol use during his index offence, and the degree of psychopathy. Violent recidivism was predicted by the combination of the offender's age, family history of alcoholism, alcohol use at time of index offence, age when criminal history began, general alcohol use, and psychopathy.

Implications of findings and suggestions for future directions of sex offender research are presented.

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INTRODUCTION AND LITERATURE REVIEW

The sexual victimization of adults and children is increasingly recognized as a serious and widespread social and public health concern (Greenberg, 1998; Hanson & Bussière, 1998; Hanson, Steffy, & Gauthier, 1993). Reported rates of sexual victimization have risen in the past two decades, with high victimization rates among adult females and children (Integration & Analysis Program, 1999). Notwithstanding the increase of sexual victimization, the number of sexual offenders passing through the criminal justice system has also risen rapidly and disproportionately to the total Canadian offender population (Gordon & Porporino as cited in Motiuk & Porporino, 1993), creating a substantial financial burden on the Canadian criminal justice system. The financial burden ensued has raised serious social policy concerns regarding the effective management of these offenders within the Canadian justice system as well as in the social community (Firestone, Bradford, McCoy, Greenberg, Curry, & Larose, 2000; Hanson et al., 1993).

A general consensus in the sex offender literature is that effective management of these offenders is dependent on accurate information concerning their risk of reoffending (Groth, Longo, & McFadin, 1982; Soothill & Gibbens, 1978). With this goal in mind, research in the area of sex offending over the past decade has been largely focused on estimating rates of reoffending as well as isolating prognostic factors of recidivism. The significance of this research is that it can aid professionals in establishing an offender's reoffense risk, in guiding their sentencing and release recommendations, and in defining appropriate treatment programs (Greenberg, 1998; Hanson et al., 1993; Rice, Quinsey, & Harris, 1991).

Reliable predictions concerning an offender's reoffense risk, however, are dependent on accurate statistical estimates of recidivism (Doren, 1998; Prentky, Lee,

Knight, & Cerce, 1997). Unfortunately, methodological shortcomings in the existent literature (e.g., operationalization of terms and methods of measurement) has clouded our understanding of these rates (Furby, Weinrott, & Blackshaw, 1989) and has hampered our ability to provide a sound empirical base upon which professionals can base their judgements (McCoy, 1997). Given that clinical predictions of recidivism may be limited by the current status of the literature, it is pertinent that future researchers improve their methodology so that estimates of recidivism are more reliable and accurate statistical prediction of recidivism is possible (McCoy, 1997).

The primary goal of the present study will be to examine rates and predictors of sexual, violent, and general (i.e., any kind) recidivism during a 20 year follow-up period in a Canadian population of rapists and child molesters. As a secondary facet to the study, several of the methodological shortcomings in the research of recidivism of sex offenders and their effects on estimates of recidivism will be explored. To properly address these issues, some background information is provided in the Introduction which has been divided into four sections: (1) Defining the sex offender population; (2) Theoretical explanations of sexual offending; (3) Rates and predictors of sexual recidivism, violent recidivism, and general recidivism; and (4) The present study. The terms sexual aggression and sexual victimization will be used interchangeably, and are to be understood as contact and non-contact sexual behaviors perpetrated by a male against adult females and children of both genders.

Sexual Offenders: Defining the Population

Even before entering a discussion of sexual recidivism, the population being described in this study must be defined. This information provides a framework to understand the research in later sections.

The term sexual offender is a generic term that describes an individual who may have committed a sexual act with a person of any age that was perpetrated: 1) against the victim's will; 2) without consent; and 3) in an aggressive, exploitative, or coercive manner (Ryan, 1991). This definition encompasses a range of types of sexual offenders with very different modus operandi. In defining the types of sexual offenders, several factors are taken into consideration. These factors include the sexual behavior (e.g., disrobing, watching, penetration), the relationship between the offender and victim, the impact of the behavior on the offender as well as the victim (Polaschek, Ward, & Hudson, 1997; Ryan, 1991), and the age of the victim. Based on the aforementioned criteria, sex offenders may be classified into such subtypes as exhibitionists, rapists or child molesters. Because this study focuses on child molesters and rapists, more detailed definitions of these two subtypes are provided.

Rape. The term refers to the use of coercion or force with a nonconsenting individual to participate in sexual activity (Abel & Osborn, 1992; Mayer, 1988; Ryan, 1991). Although this term (and its implied definition) is part of common parlance, it is currently not applied within a legal context in Canada. In 1983, the criminal offences of rape and attempted rape were nullified and replaced with three new crimes of sexual assault (Integration & Analysis program, 1999). As it currently stands, a sexual offence is designated to one of three levels according to the seriousness of the offence or the degree of physical injury incurred by either a female or male victim (Integration & Analysis program, 1999). Thus, the term sexual assault currently

encompasses sexual conduct that ranges from sexual touching without voluntary consent to sexual violence resulting in physical injury (Integration & Analysis program, 1999; University of Alberta, 2001).

Cardinal to the determination of whether a sexual assault was committed, under the Canadian Criminal Code, is ascertaining if voluntary agreement was obtained by the complainant to engage in the sexual activity (University of Alberta, 2001). Moreover, the legal definition implicitly considers the victim's age. It is assumed that the victim has the capacity to consent to engage in sexual activity because he/she is within the legal age of statutory consent (Although this age can vary depending on the sexual act perpetrated, the modal age of consent is 14 years of age).

For the purpose of reviewing the literature in this study, rapists will be defined as individuals over the statutory age of consent (i.e., 14 years) who has attempted to sexually assault or who have sexually assaulted individuals over aged 16 years and older (Quinsey, Rice, & Harris, 1995).

Child molesters. Two concepts are intrinsic to defining child molesters: 1) the age of the victim; and 2) the use of coercion (Knudsen, 1991). The age of the victim is particularly pertinent in defining child molestation. Sexual acts performed with persons who are under the legal age of consent (i.e., minors) are considered as sexual crimes of child molestation (Butz & Spaccarelli, 1999). Under the Canadian Criminal Code, the legal age of consent is set at aged 14 years. Regardless of whether the minor provided consent to engage in the sexual act, it is still considered a sexual crime. It is maintained that minors are incapable of consenting to sex with adults because they do not have the developmental maturity to understand the social meanings and consequences of their actions (Knudsen, 1991). Child molestation is also legally defined as the commission of a sexual act in which the alleged perpetrator

is at least five years older than the young victim (who is between ages of 14 and 18 years) or the individual retains a trusted position of authority and the young person is dependent on that individual (Integration & Analysis program, 1999). Coercion involves many behaviors, including threat, force, deception, and trickery (Knudsen, 1991).

Child molesters are frequently differentiated into subgroups of incestuous offenders and extrafamilial child molesters, according to the relationship of the victim to the perpetrator. Incestuous offenders perpetrate sex offences against biological members of their family, whereas extrafamilial sex offenders perpetrate sex crimes against nonbiological relatives.

For the purpose of reviewing the literature in this study, child molesters will refer to males aged 18 years of age or older and at least five years older than the victim at the time of the alleged offence (Greenberg, Bradford, Firestone, & Curry, 2000). Extrafamilial offenders refer to child molesters who have perpetrated sexual crimes against nonbiological relatives, whereas incest offenders refer to child molesters who have perpetrated sexual crimes against related family members.

Theoretical Explanations for Sexual Offending

Current theoretical perspectives for sexual aggression consist of two extreme and polar views (Barbaree, 1990), which demarcate a dichotomy between the etiological influences of nature and nurture (Hanson, 2000). On the one side are theoretical perspectives that suggest inherent biological predisposition and physiological conditions lead to sexual deviant behavior. Examples of this perspective include the evolutionary theory of sexual offending (Quinsey & Lalumière, 1995) as well as physiological theories proposing hormonal influences on sexual offending (e.g. Hucker & Bain, 1990). On the other side are theoretical

perspectives that maintain sexual deviant behavior is a product of the environment. Examples of this perspective include feminist theory (e.g., Herman, 1990; Stock, 1991), social cognitive theory (Ward, Hudson, Johnston, & Marshall, 1997), as well as the sexual preference hypothesis (Barbaree, 1990).

Although proponents of each theoretical perspective are able to offer adequate explanations for some types of sexual offences and they are able to justify their positions with empirical findings (Barbaree, 1990), none of these perspectives have been able to fully account for the heterogeneity of the sexual offender population as well as the variability in sexually aggressive behaviors. It is becoming increasingly clear that sexually aggressive behavior is a function of multiple factors, and conversely, no single factor can explain all aspects of the phenomenon (Barbaree, 1990; Hall, 1990; Hall & Hirschman, 1991). However, despite the growing awareness of the complexity of sexual aggressive behavior, there are relatively few published theories that unify the various etiological factors into a single, comprehensive theory of sexual offending. Indeed, only two illustrations of comprehensive, unifying theoretical perspectives of sexual offending have been published: 1) Marshall and Barbaree's (1990) integrated theory of sexual offending, and 2) Hall and Hirschman's (1991) quadripartite model of sexual offending. These comprehensive theoretical perspectives are briefly presented here as a basis for understanding the complexity and uniqueness of sexually aggressive behavior.

Integrated theory of sexual offending. Marshall and Barbaree (1990) propose a model for sexual offending that integrates several theoretical perspectives (i.e., evolutionary psychology, feminist theory, and social learning theory) as well as empirical findings from the sex offending literature (e.g., role of sex steroids, and role of self-esteem). There are three cardinal elements to the model: 1) biological

influences; 2) childhood experiences; and 3) sociocultural factors. These elements are viewed as “functionally interdependent” (Marshall & Barbaree, 1990, p.257), and sexual offending can be understood as a consequence of their interrelationship.

According to their model, evolutionary history has conferred human males with the biological capacity to sexually aggress (or use threats and coercion) which is used as means for obtaining sexual goals. Most males overcome this sexual propensity by acquiring prosocial behaviors and attitudes during childhood and adolescence that instill social inhibitions toward sexually aggressive behavior. Puberty and the ensuing years of adolescence, in particular, are viewed as a critical developmental period for the cultivation of these socially appropriate behaviors and attitudes. The reason this developmental period is crucial is that with the onset of puberty in males there is a significant and rapid increase in sex steroids (particularly testosterone), and these steroids have been known to function in both sexual and aggressive behaviors (Marshall & Barbaree, 1990). Developing adolescent males are thus presented with the task of learning how “to express and channel” (Marshall & Barbaree, 1990, p.261) sudden strong sexual desires using prosocial behaviors and mental sets.

Adverse childhood experiences, however, may facilitate the expression of sex and aggression in developing adolescent males. Primary caregivers may have inadequately prepared young males for the physiological changes of puberty, and they may have been exposed to poor socialization practices by these caregivers. In particular, poor parenting practices (e.g., harsh and inconsistent discipline) and the development of weak and unstable caregiver-child attachment bonds may foster feelings of social inadequacy and low self-esteem in developing males. Social inadequacy in the pubescent male may instill feelings of anxiety about social

interactions, feelings of masculine inadequacy, and possibly anger toward females. Each of these characteristics may hinder the development of the necessary interpersonal skills to form healthy, intimate relationships in adulthood, and may make the changes of pubescence and the transition between developmental stages (i.e., childhood to adolescence to adulthood) more difficult. These characteristics also may facilitate feelings of resentment and hostility toward women, which may promote the combined expression of sex and aggression.

Sociocultural influences, such as tolerant attitudes toward interpersonal violence and supportive attitudes of male dominance, may interact with adverse childhood experiences to facilitate sexual aggression. Marshall and Barbaree (1990) propose that adolescent males with low self-esteem will be more likely to adopt attitudes and behaviors that provide them with a sense of power and bolster their sense of masculinity than behaviors and attitudes espousing egalitarian values. Moreover, parents may adhere to the beliefs of a patriarchal system (i.e., male dominance) and these values may be passed on to their (male) progeny. In addition, Marshall & Barbaree state that there are transitory situational factors that interact with biological, early childhood experiences, and sociocultural influences to increase the proclivity of sexual offending. These factors include alcohol intoxication, anger and stress, and the belief that the offender will not be legally sanctioned or caught for the offence.

In summary, Marshall and Barbaree's (1990) comprehensive model of sexual offending adopts a developmental approach to understanding sexual aggression. The central, unifying theme of the model pertains to the male's primary task of acquiring inhibitory controls over a "biologically endowed propensity" (Marshall & Barbaree, 1990, p.257) for sexual aggression. These controls are cultivated through experiences

during childhood and adolescence as well as by the indoctrination of prosocial sociocultural attitudes and socially acceptable behaviors, which are salient influences through adult life

The quadrapartite model. Hall and Hirschman (1991) propose that the probability of a man sexually aggressing against an adult female is a function of the synergistic interaction among four components: 1) physiological arousal; 2) cognitive-behavior, 3) affective dyscontrol, and 4) personality/trait factors. Included within each component are several factors that have been identified in past research as important etiological determinants of sexual offending. For example, the physiological component is based on physiological patterns of deviant sexual arousal, as demonstrated by phallometric testing with sexual offenders. The cognitive component emphasizes that sexual aggressive behavior may be motivated by particular faulty cognitions, including negative or conservative attitudes toward women, acceptance of interpersonal violence, misperception of sanctions against sexual aggression (e.g., rape is not ethically or legally wrong), and faulty processing of cues provided by women. The affective dyscontrol component incorporates negative affective states, such as depressive feelings, anger, and hostility, that may precede the cognitions related to sexual aggressive behavior. The personality/trait component is comprised of developmental factors (low levels of education, low occupational status, and poor socialization skills) and poor early socialization experiences (e.g., childhood abuse, parental divorce, and parental criminal history) that may adversely affect adult functioning (McCoy, 1997). As well, antisocial behaviors (e.g., difficulty adhering to the norms of society) are included in this component.

Hall and Hirschman (1991) assert that physiological arousal, faulty cognition, negative affective states, and personality/trait problems are essential components that increase the probability of sexual offending. Absence of any one of four factors may decrease the probability of sexual offending. Conversely, the prominence of any one of the four factors in the model can influence the relative intensity of the other components, and at the same time, increase the likelihood of sexually aggressive behavior. Of particular relevance to the present study is their suggestion that the fusion of personality/trait disturbances with the remaining three components may explain patterns of chronic and severe sexual aggressive behaviors (Hall & Hirschman, 1991). Although environmental factors are not viewed as a critical component of the model, Hall and Hirschman concede that these factors (e.g., alcohol, peer support, and provocation) may facilitate the likelihood and expression of sexual aggressive behavior.

Summary

In the current section, Marshall and Barbaree's (1990) integrated model and Hall and Hirschman's quadripartite model were presented. Each of these theoretical perspectives incorporates into a single model various ideological and univariate perspectives as well as elements of sexual offending that are already known. Furthermore, there is an emphasis in each model that a proper understanding of the etiology of sexual offending can only be attained when consideration is given to the interaction between physiological factors, poor socialization experiences, the role of negative and hostile attitudes, and the role of negative affect (e.g. anger). Consideration is also given to the role of various extraneous influences in sexual aggression, such as presence of alcohol and provocation.

Of particular relevance to the present study is that each of the aforementioned theoretical perspectives offers the necessary guidance and framework for recidivism research with sexual offenders. Moreover, they are general enough to address offences against both children and adults (McCoy, 1997). Indeed, relationships between many of the factors isolated in the models and sexual offending as well as re-offending have been empirically proven with rapists and child molesters. To illustrate, a common finding in the research has been the relationship between sexual deviancy and sexual offending (e.g., Abel, Becker, Rathner, Mittelman, & Rouleau, 1988; Barbaree & Marshall, 1988; Hanson & Bussière, 1998; Firestone et al., 2000; Proulx, Pellerin, Paradis, McKibben, Aubut, & Ouimet, 1997; Rice et al., 1991). In Hanson and Bussière's meta-analysis of 61 follow-up studies of sexual offenders, the strongest predictors of sexual recidivism were factors related to sexual deviance, as measured by phallometric methods. In particular, offenders who re-committed a sexual crime showed a strong preference for children as sexual partners and tended to be sexually aroused by male children. In addition, offenders who had *any deviant sexual preference* (p.351) were more likely to sexually offend.

While the relationship between early childhood experiences and sexual offending has not been widely examined, several studies support the relationship of adverse childhood experiences and sexual recidivism (Hanson & Harris, 2000; Firestone, Bradford, McCoy, Greenberg, Curry, & Larose, 1998). For instance, Hanson and Harris (2000) study of 208 sexual offense recidivists and 201 non-recidivists found that sexual recidivist, in comparison to non-recidivists, were significantly more likely to have been sexually abused during childhood, to have been apprehended by child protective services, and to have experienced a long-term separation from parents before the age of 16 years.

Another familiar finding in the research is the relationship between faulty cognitions and sexual offending (e.g., Blumenthal, Gudjonsson, & Burns, 1999; Hall, 1990; Hanson & Harris, 2000; Marshall, Marshall, Sachdev, & Kruger, 2003). In general, there appears to be some specialization between the type of sex offender and the maturity of the victim. To illustrate, Blumenthal and colleagues (1999) reported in their study of 36 child molesters and 30 rapists that child molesters endorsed more positive attitudes associated with sex with children than rapists, and rapists made more attributions blaming the victim than child molesters. The researchers hypothesized that rape myths may have played a role in the rationalization of the sexual act. In Hanson and Harris (2000) study examination of rapists and child molesters, recidivists were more likely than non-recidivists to believe that their sexual crimes were justified and showed little remorse for their crimes. Similar to the finding of Blumenthal et al (1999), recidivistic rapists tended to espouse rape attitudes and recidivistic child molesters tended to sexualize children (Hanson & Harris, 2000).

There is also documentation in the sex offender literature to support that child molesters experience feelings of low self-esteem (Marshall et al., 2003). For instance, Marshall and colleagues (2003) compared the level of self-esteem displayed by 25 child molesters, 25 property offender, and 39 community volunteers and showed that child molesters had significantly lower self-esteem than the other two groups. These researchers also demonstrated that there was a negative correlation between self-esteem and the endorsement of sex with children. Moreover, the relationship between sexual recidivism and negative affective and dispositional states, such as anger and hostility, among sex offenders has been empirically demonstrated (Hall, 1989; Hanson & Harris, 2000; McCoy, 1997). For instance, in Hanson and Harris' study examining community supervision officer reports of sexual offender recidivists and

nonrecidivists found that recidivists were more likely to express feelings of anger before committing their next sexual offense (Hanson & Harris, 2000).

Another steadfast finding in the sexual offending literature is the relationship between sexual aggressive behaviour and transitory situational characteristics of the index offence, such as alcohol use (Abracen, Looman, & Anderson, 2000; Blumenthal et al., 1999; Hanson & Harris, 2000; McCoy, 1997). For example, the findings of a study comparing 72 incarcerated rapists and 34 incarcerated extra-familial sex offenders with 24 incarcerated nonsexual violent offenders on standardized measures of alcohol and drug use indicated that sexual offenders were more likely to abuse alcohol than nonsexual violent offenders (Abracen et al., 2000). Moreover, the rapists and extra-familial child molesters were more likely to be classified as severe alcohol abusers in comparison to the nonsexual violent offenders (45.8% and 41.2% vs. 4.2%, respectively). Another study found that re-offending rapists and child molesters, in comparison to those who did not re-offend, were reported by community supervisor officers to be the most likely to abuse drugs and/or alcohol, and that the amount of alcohol/drugs abused tended to increase prior to the commission of a new sexual offence (Hanson & Harris, 2000).

Finally, the relationship between sexual recidivism and the diagnosis of antisocial personality disorder has been well-documented in the literature (Hanson & Bussière, 1998; Hanson & Harris, 2000). For instance, Hanson & Bussière's (1998) meta-analytic study found that the risk for sexual recidivism increased for those who met criteria for antisocial personality disorder. Similarly, there is evidence to support that sexual recidivists are differentiated from non-recidivists by their significantly higher scores on the Psychopathy Checklist (e.g., Firestone et al., 1999; Hanson & Harris, 2000; Quinsey, Lalumière, Rice, & Harris, 1995; Rice, Harris, & Quinsey,

1990) and that scores on the Pscypathy Checklist are predictive of sexual recidivism (e.g., Quinsey et al., 1990; Serin, Mailloux, & Malcolm, 2001) .

Evaluating Rates and Risk Factors of Recidivism

The concept of recidivism has evolved during the past two decades from compiling rates of recidivism to an assessment of factors related to the offender and the victim, isolation of crime related variables, and consideration of whether there has been a progression in seriousness of offence (Bagdely, Allard, McCormick, Proudfoot, Fortin, Ogilvie, Grant, Gelinias, Pepin, & Sutherland, 1984). While there is considerable breadth to the concept of recidivism, much of the emphasis in the research has been in establishing rates of recidivism of sex offenders as well as isolating factors related to subsequent offending (e.g. Hanson & Bussière, 1998; Motiuk & Porporino, 1993). There are practical reasons guiding this research; namely, to aid professionals in both justice and forensic settings with sex offender management as well as risk assessment of the offender in the community.

The goal of the current section is to provide an overview about rates and factors associated with recidivism. There are three parts to the section. In the first part, the research will be reviewed with regard to methodological issues associated with recidivism. The second part examines the literature pertaining to recidivism rates, and the third part provides an overview of factors related to those who re-offend.

Methodological Issues

Research exploring recidivism of sex offenders' shares several important methodological shortcomings, including defining the term recidivism, operational measures of the construct, sampling issues, and the length of follow-up. These shortcomings have the potential of underestimating base-rate estimates of recidivism

(Doren, 1998), and complicating our understanding of recidivism. A review of several of the methodological issues is briefly presented.

Defining recidivism. Recidivism is defined as “a tendency to relapse into a previous condition or mode of behavior” (Meriam-Webster’s Ninth New Collegiate Dictionary, 1986, p. 983). Although this definition is relatively simplistic, it generates considerable ambiguity as to which particular behaviors constitute a relapse. For instance, a relapse may refer to the commission of the same type of sex act, while a broader definition would include the commission of any type of sex offence (Greenberg, 1998). Because many sex offenders have criminal histories involving non-sex crimes (Greenberg, 1998; Prentky & Knight, 1993), violent offences that are not sexual in nature (e.g., robbery) may also be considered as recidivistic acts or relapses (McCoy, 1997). A fourth definition considers all offences, including nonviolent offenses (e.g., drug and property offences). Lastly, recidivism or a relapse may also be considered as technical violation of conditions of parole, such as drinking alcohol (Bynum, Carter, Matson, & Onley, 2001). Studies using technical violations as the criterion of recidivism will result in the classification of individuals as recidivists even though they have not committed a new offense (Bynum et al., 2001). Technical violations are considered because it is believed that a criminal relapse is imminent (Marques, Day, Nelson, & West, 1994).

As evidenced by the literature, studies have reported higher rates of recidivism when broader definitions are used than when researchers have relied on the more conservative definitions (McCoy, 1997). This was illustrated in Hanson & Bussière’s, (1998) meta-analytic study of recidivism among sexual offenders. The researchers utilized three definitions of recidivism: sexual crimes, nonsexual violent crimes, and

general (any) crimes. Sexual, nonsexual violent and general recidivism rates were 13.4%, 12.2% and 36.9%, respectively.

Measuring Outcome. There is variation across studies in terms of how recidivism is measured. Recidivism can be measured as new charges, new conviction, or a combination of the two (Blanchette, 1996; Bynum et al., 2001; Doren, 1998). On the whole, estimates of recidivism tend to be more conservative when new convictions are used as the criterion defining recidivism. To illustrate, Prentky and colleagues (1997) found recidivism rates were 15% lower when convictions, as opposed to charges, were used as a measure of recidivism. The reason that rates tend to be conservative when convictions are used as a measure of recidivism is that many individuals who are arrested may receive a large number of charges related to a particular offence but may not necessarily be convicted on all these charges (Bynum et al., 2001). Moreover, many charges are dropped due to insufficient evidence or plea bargaining (Firestone et al., 2000). It follows that estimates of recidivism tends to be higher when researchers measure recidivism in terms of the frequency of new charges than when the frequency of new convictions is used as the criterion. Thus, rates of recidivism will vary across studies because each of these terms measures a different aspect of the same phenomena (Bynum et al., 2001).

Data Collection. Most researchers obtain their information regarding new charges and convictions from official police reports. Estimates of recidivism formulated from these reports, however, generally underestimate the true rate at which recidivism occurs (Doren, 1998; Furby et al., 1989; Hall & Proctor, 1987). Most victims do not report sexual assault incidents to police (Bynum et al., 2001; Tremblay, 2000). In fact, one national study in Canada estimated that 90% of victims of a sexual assault chose not to report the incident to police (Trembaly, 2000).

Reasons commonly cited by victims as to why they do not report these crimes, include the police cannot help, fear of reprisal from the perpetrator, the perpetrator is a family member, and fear of negative experiences from the criminal justice system (Bynum et al., 2001; Tremblay, 2000). Moreover, sex crimes that are reported to authorities are not always reported immediately following the crime (Tremblay, 2000). A study by Statistics Canada found that 7% of sexual incidents reported to police in 1997 occurred prior to 1993 (Tremblay, 2000). Children and youth tended to be the victims of these older incidents (Tremblay, 2000). Thus, official records potentially dilute the true rate of recidivism.

An alternative source of information is sex offender self-reports. Researchers frequently find a higher frequency of sexual offending incidents from self-reports than from official crime reports. For instance, Groth and colleagues (1982) examined rates of sexual offending by interviewing sexual offenders incarcerated in correctional institutions. Under conditions in which confidentiality of information was guaranteed, sexual offenders admitted to an average of five undetected sexual offences. In fact, the frequency of undetected sexual offences was twice the number of reported offences. A study by Abel, Becker, Mittelman, Rathner, Rouleau, and Murphy (1987) found similar results; When confidentiality was assured sex offenders reported a significantly higher frequency of sex offences in comparison to the frequency of arrests for these crimes. In fact, the ratio of arrest to the number of self-reported crimes (i.e., rape and child molestation) was approximately 1:30 (Abel et al., 1987).

While studies collecting data using self-reports have the potential to reinforce the perspective that official reports underestimate recidivism rates, they also have the potential of underestimating its occurrence. Sex offenders are notorious for being

poor historians (Abel et al., 1987; Barbaree & Marshall, 1988), and will underestimate the frequency of sex crimes when confidentiality is not assured (Barbaree & Marshall, 1988; Kaplan, Abel, & Cunningham-Rathner, 1990 as cited in McCoy, 1997).

Incarcerated sexual offenders are caught in a Catch-22 (Abel & Rouleau, 1990). Any admissions to sexual crimes for which they have not been charged can lead to further prosecution. Consequently, it is not in their best interest to divulge the true scope of their sexual offending because it can potentially affect their opportunity for parole and extend their period of incarceration (Abel et al., 1987; Abel & Rouleau, 1990). Thus, data obtained from sex offenders in all probability represents the base level of sexual offending (Abel et al., 1987).

Sample selection. As stated by Abel and Rouleau (1990), there are many factors that affect the “who, what, where, and when” (p. 10) in selecting a sample of subjects. In sex offender research, sample selection is greatly affected by the location of the research (Greenberg, 1998). Conclusions formulated about recidivism may consequently vary depending whether samples were selected from incarcerated or community-based populations (Abel & Rouleau, 1990; Greenberg, 1998; Hall, 1995), secure psychiatric (Prentky et al., 1997; Quinsey et al., 1995; Rice et al., 1991) or minimum security settings (Hanson et al., 1993; Hanson & Harris, 2000), as well as to whether they were collected from treatment based programs or from outpatient (non-treated) populations (Hall, 1995). Incarcerated and community based samples, for instance, can differ markedly with respect to their demographics, psychological factors, and criminal history. To illustrate, approximately 25% of a sex offender sample in one community based study of child molesters had prior convictions for sex crimes (Firestone et al., 2000). In comparison, a study with an incarcerated sample of child molesters reported that approximately 42% of the sample had prior convictions

for sex crimes (Hanson et al., 1993). Incarcerated and community samples may also differ with respect to the level of risk they represent to the community (Hall, 1995), with offenders having a community-based sentence deemed a lower risk to re-offend than institution-based samples. The heterogeneity of sexual aggressors is an additional sampling factor that complicates estimates of recidivism. Different types (e.g., rapists vs. child molester) and subgroups (incest offenders vs. extrafamilial child molesters) of sex offenders are situated within each site (Greenberg, 1998), and rates of recidivism tend to vary according to type of offender (Firestone, Bradford, McCoy, Greenberg, Larose, & Curry, 1999; Hanson & Bussière, 1998; Quinsey, Rice, & Harris, 1995). Thus, the method of sample selections and the characteristics of the sample need to be taken into consideration when determining if findings related to recidivism represent the larger sex offender population.

Length of follow-up. Studies have variable length of follow-up periods for offenders in the community. Greater accuracy of estimates for recidivism rates are most likely to be obtained with follow-up studies that cover a minimum of five years (Doren, 1998; Furby et al., 1989), as the greatest risk period for recidivism of sexual offenders is within the first 5 to 10 years (Hanson & Bussière, 1998). Studies, however, have shown that sexual offenders are at risk of reoffending throughout their life (Hanson & Bussière, 1998; Soothill & Gibbens, 1978). It has been estimated that approximately a quarter of sex offender recidivists will re-offend sexually and/or violently after living in the community ten years or more (Hanson et al., 1993; Soothill & Gibbens, 1978). Thus, the accuracy of estimates of recidivism rates will be a function of the length of the follow-up period. Those studies having longer follow-up periods will have more accurate rates of recidivism. In the present investigation, analyses of rate of recidivism will use a follow-up period that is

computed from the time of release from incarceration to the first re-offence. All other analyses (e.g., frequencies, comparison between groups) will be computed from the time of release to new offense.

Measuring the relationship between predictor variables and recidivism. It should also be kept in mind that our knowledge regarding predictors of recidivism is tempered by the nature of how recidivism is operationalized and measured. The most common approach of appraising level of reoffense risk of an offender involves examining a variety of factors, including deviant sexual arousal, alcohol abuse, history of criminal activity, and determining whether they predict the *occurrence* (i.e., presence/absence) of recidivism. With this approach, recidivism outcome is described as a dichotomous recidivist/nonrecidivist categorization. The majority of the empirical research of recidivism has isolated prognostic factors with this method (e.g., Barbaree & Marshall, 1988; Hanson & Harris, 2000; Prentky et al., 1997; Proulx et al., 1997; Quinsey et al., 1995; Rice et al., 1991). In the present investigation, the relationship between predictors and recidivism will utilize any new charge rather than first new offense.

Another method of assessing prognostic indicators of recidivism is through the examination of various factors and their relationship to the *number* of reoffenses over a specified period of time (i.e., frequency). Unfortunately, few researchers have attempted to predict the relationship between prognostic indicators and recidivism with this method (Abel et al., 1987; Barbaree & Marshall, 1988; Hall & Proctor, 1987). Existent research suggests that the prediction model of recidivism will vary slightly according to whether the number of reoffenses or whether the occurrence of recidivism is used by the researcher as the outcome criteria. Indeed, a study by Barbaree and Marshall (1988) provides an effective illustration on how definitional

variation of recidivism can yield different findings with respect to predictors of recidivism.

In short, Barbaree and Marshall (1988) examined selected demographic and criminal history variables and deviant sexual arousal as predictors of recidivism in a group of 35 untreated child molesters over an average of four-years. Reoffence was measured as the occurrence of a new charge or conviction as well as the number of new charges and convictions. The predictor variables were grouped according to a factor analysis, resulting in three factors: 1) Sexual deviance, consisting of the measure of deviant arousal, the amount of force involved in the first offense, whether the offender had intercourse with his victim, and the number of previous victims; 2) Social Status, consisting of IQ and social status; and 3) Offender Age, consisting of the age of the offender and the age of the victim.

Taken together, the three factors accounted for approximately 20% of the variance in recidivism and nearly 30% of the variance in the number of reoffenses. Interestingly, correlational analyses between each of the reoffense variables (i.e., recidivism and number of reoffenses) and each of the predictor variables resulted in slightly different findings. The probability of reoffending was positively correlated with the amount of force in the index offence. The number of reoffenses, however, was positively correlated with the amount of force, the presence of intercourse, the number of victims, and their score on phallometric assessment. Moreover, the number of reoffenses was negatively correlated with the level of intelligence and the socioeconomic status of the offender.

On the whole, Barbaree and Marshall's (1988) study illustrates that the method of measuring recidivism has an effect on the outcome of the research. The importance of these findings, like all recidivism research, is tempered by several

methodological shortcomings. First and foremost, the researchers failed to explicitly state whether they were assessing only sexual recidivism or any recidivism. Second, the follow-up period for the offenders was relatively short, with an average follow-up time of four years. And lastly, the researchers only used a small range of static predictor variables. Additional variables, such as alcohol abuse, childhood victimization, and attitudes toward violence, may improve their prediction model.

Summary. Methodological practices, including definition of recidivism, measurement of construct, sampling issues, and length of follow-up, have varied markedly between empirical studies examining sexual offender recidivism. The diversity in methodological practices in sex offender recidivism research has created some ambiguity regarding the base rate of recidivism, and has raised questions as to the meaningfulness of the recidivism research (Bynum et al., 2001; Greenberg, 1998). Notwithstanding the existence of these methodological variances, one should not lose sight that the findings of recidivism research can be a useful criminological tool. By comparing studies with similar methodological attributes (Bynum et al., 2001; Marshall, 1993), statements and tentative conclusions about recidivism can be formulated, including estimates of recidivism, assessment of risk, and effectiveness of treatment programs.

Rates of Recidivism

In this section, follow-up studies of sex offenders are reviewed in an attempt to address the rates of recidivism among the general population of sex offenders. Particular emphasis will be placed on rates of sexual and sexual violent recidivism of rapists and child molesters.

Two basic methods have been used by researchers to calculate rates of recidivism. The first method, which is the simplest and most common, is to compute

the percentage of individuals who re-offended during the follow-up period (Prentky, Knight, & Lee, 1997). Recidivism rates tend to be underestimated by this procedure because it does not statistically account for offenders who are released from institutions at different time periods during the study period and that “some of those individuals who were in the community for briefer period of time may still reoffend” (Prentky et al., 1997, p.641). The second method of calculating rates of recidivism compensates for the aforementioned deficiencies through a statistical procedure called survival analysis. This procedure computes the rate of recidivism by taking into account both the percentage of offenders who commit subsequent crimes as well as the time between release from criminal institutions and subsequent criminal activity (Prentky et al., 1997; Quinsey et al., 1995).

Perhaps one of the most comprehensive methods of summarizing the findings of the recidivism research has been through meta-analytic studies, or quantitative reviews. This approach enable for the findings of individual studies to be statistically reviewed “...for the purpose of integrating the findings” (Wolfe, 1986, p.11). Hall (1995), for instance, used a meta-analytic approach to examine sexual recidivism. His study included 12 treatment outcome studies of sexual offenders (N= 1,313). Approximately half of the studies included samples drawn from institutions, and 10 of the 12 studies included samples of child molesters. Recidivism was defined as “additional sexually aggressive behavior after a treatment period for participants who did and did not receive treatment” (p.802). Hall reported that 19% of the group receiving treatment re-committed a sexual crime whereas 27% of the untreated group of offenders re-offended sexually. The average follow-up period across studies was approximately 7 years.

Although Hall's meta-analytic study provides an efficient and suitable method of assessing the rate of recidivism among sexual offenders, his findings have to be judiciously regarded. The meta-analysis included studies of male offenders who were described as exhibiting serious and persistent sexual offending behavior (Hall, 1993). Consequently, the rates cited by Hall may only be representative of a selective subgroup of the sex offender population. In addition, Hall included a greater number of studies with samples of child molesters than other types of sexual offenders, and he failed to statistically control for this variable. It raises the question as to whether the (accumulative) recidivism rate reported by Hall is more representative of the rate of recidivism among child molesters than the general sex offender population. Lastly, Hall restricted his measure of analysis to official records. As previously stated in the present paper, rates formulated from official reports tend to underestimate the true rate of recidivism. Thus, the actual rate of recidivism may be higher than reported by Hall.

A more recent and more comprehensive meta-analysis of sexual and nonsexual violent recidivism among sexual offenders was published in 1998. This study, by Hanson and Bussière, is perhaps one of the most widely cited studies of recidivism due to its breadth (it samples from diverse sites and includes a variety of sex offender types) and methodological soundness. The 61 studies included in the meta-analysis provided information on 28,972 sex offenders sampled from institutionalized populations, community populations, or both. The authors examined three types of recidivism: sexual, nonsexual violent, and general. The researchers measured rates of recidivism utilizing several sources, including re-arrests, convictions, self-reports, and parole violations. When recidivism was defined as a new sexual offence, the average rate of re-offending was 13.4%. In comparison, rates of 12.2% for nonsexual

violent recidivism and 36.3% for general recidivism were reported by the authors. The follow-up period ranged from 6 months to 23 years, with an average period of four to five years. Hanson and Bussière (1998) commented that recidivism rates rarely exceeded 40%, even in those studies having follow-up periods of 15 to 20 years. Unfortunately, they failed to specify if this rate represented sexual recidivism, nonsexual violent recidivism, any recidivism, or a combination of all three. It should be also noted that Hanson and Bussière caution that the rates calculated in their study may underestimate the true rate of re-offending because of variability of follow-up periods and diverse sampling methods in the studies.

Because of evidence of differential rates of offending between rapists and child molesters (e.g., Hanson & Bussière, 1998; Quinsey et al., 1995; Proulx et al., 1997), many investigators have focussed their efforts on assessing the recidivism rates for each group. For the most part, recidivism rates of rapists have been assessed on the basis of shorter term (follow up) studies of five to 12 years. In Proulx and colleagues (1997) investigation of recidivism with 113 rapists over an average of a five year follow-up period, the reconviction rate for sexual, violent, and any offences was approximately 21%, 36%, and 51%, respectively. In Hanson & Bussière (1998) meta-analysis, 19% of 1,839 rapists were charged or convicted of a sexual offence over an average of four to five years. The rate of nonsexual violent recidivism and any re-offence of this sample of rapists was 22% and 36%, respectively. Firestone Bradford, McCoy, Greenberg, Curry, and Larose (1998) examined sexual, violent, and general recidivism in a sample of 86 rapists who had been assessed in a sexual behaviors clinic at the time of their conviction. The percentage of men who had been charged or convicted of a sexual offence, violent (including sexual), or any offence by the 12th year of the follow-up period was 16%, 26%, and 53% respectively. Quinsey,

Rice, and Harris (1995) also followed a sample of rapists for a period of 12 years. They report that 28% of their sample had been convicted of a new sexual offence, and 40% of their sample was arrested, convicted, or returned to the institution for a new violent offence (this category included sexual offences). It is interesting to note that, despite the researchers using a more restrictive definition of sexual recidivism (i.e., conviction), their rate is considerably higher than Firestone and colleagues (1998). The discrepancy between the two studies is most likely due to the sample characteristics. The sample in Quinsey et al. study was drawn from a maximum security psychiatric hospital, whereas the sample used by Firestone and colleagues were offenders who had been assessed at a psychiatric hospital at the time of their sentencing hearing.

Only two studies have been published that have examined sexual recidivism in rapists with a follow-up period exceeding 20 years. The first study was published in 1976 and involved a 22 year follow-up of rapists (Soothill, Jack, & Gibbens, as cited in Soothill & Gibbens, 1978). In this study, 23% of the rapist group were re-convicted for a sexual crime. The second study, a more recent study, was conducted by Prentky, Lee, Knight, and Cerce (1997). Recidivism was defined as new charges, and the researchers coded all possible criminal offences. A particularly salient strength to this study is that the researchers used the technique of survival analysis to statistically control for variability of length of follow-up of individual offenders while they were in the community. Recidivism was operationalized as a failure rate, which referred to the “proportion of individuals who reoffended using survival analysis” (p. 641). Using this statistical method, 39% of the rapists were charged for a new sexual crime against a person at the end of a 25-year period. The rate of nonsexual violent recidivism was 33%, and 36% for nonsexual non-violent re-offences. Prentky and colleagues also

calculated the proportion of rapists (as reflected as a percentage of the sample) who were known to have re-offended during the study period. This method of computing the rate of recidivism, unlike survival analysis, does not take into consideration the length of time each offender was in the community and could potentially re-offend (Prentky et al., 1997). Of particular relevance to the current investigation, the researchers found this method, in comparison to survival analysis, underestimated the rate of sexual recidivism by 13%. Another striking finding in the study was that only 50% of the total sample of offenders who were charged of a sexual crime re-offended by the end of the fifth year. In fact, they found that approximately one percent of the sample re-offended each year between the 5th and 25th year of the study. This finding suggests that rapists have a stable rate of recidivism that extends beyond the traditional five year follow-up study.

Regarding child molesters, studies of incarcerated offenders with follow-up periods of approximately five years suggest that a relatively small percentage of the population of child molesters will re-commit a sexual crime (e.g., Firestone et al., 2000; Hanson & Bussière, 1998; Proulx et al., 1997). To illustrate, Hanson and Bussière (1998) meta-analytic study found that approximately 13% of child molesters reported a new offence, or were charged or re-convicted of a sexual offence during a five year follow-up period. Studies with short-term follow-up periods (i.e., five years and less), however, provide an inaccurate picture of the rate of recidivism among this group of sexual offenders. Publications examining sexual recidivism of child molesters with lengthy follow-up periods of 15 to 31 years provide a better estimate of the rate of recidivism among child molesters (e.g., Proulx et al., 1997; Rice et al., 1995; Firestone et al., 1998).

Soothill & Gibbens (1978) examined the long-term sexual recidivism of 174 child molesters. The length of the follow-up period for possible re-convictions of sexual crimes was 24 years. The researchers statistically controlled for the differential periods at risk each offender had in the community. Soothill and Gibbens reported that the overall rate of recidivism was 48 percent. Further, they note that, apart from the first two years at risk, nearly every year had a recidivism rate of 2 to 3 percent.

A later study conducted by Hanson and colleagues (1993) reported similar findings to Soothill & Gibbens (1978). In this study, Hanson and colleagues examined sexual recidivism in a sample of 197 child molesters released from Canadian correctional institutions. The strength of this particular study is its lengthy follow-up period of 31 years. It is one of the longest studies of child molesters. Further, Hanson and colleagues used survival analysis to statistically control for variability of length of follow-up of individual offenders while they were in the community. Hanson and colleagues (1993) found that 42% of the total sample was re-convicted for a sexual offence, a violent offence, or both. Their findings from the survival analysis indicated that 5.2% of the total sample of child molesters sexually recidivated during the first 6 years, and that the rate dropped to about 2% per year for the next 20 years. Of particular significance was their finding that 23% of the sample was re-convicted more than 10 years following their release.

Finally, Prentky and colleagues (1997) used survival analysis to compute the sexual recidivism rate of 115 child molesters during a 25 year follow-up period. The researchers computed recidivism based on all charges obtained by the offenders from their time of release to the end of the study period. Of the total sample, 52% were charged with a new sexual offence, 23% were charged with a nonsexual violent

offence, and 48% were charged with a nonsexual non-violent offence. The rate of sexual recidivism is slightly higher than the estimate cited in Hanson et al. (1993) study, which may be due to the researchers using charges rather than convictions as a measure of recidivism. In addition, the offenders in this study may be qualitatively different from those in Hanson et al study. They were drawn from a high security American forensic institution for “sexually dangerous persons” (p. 637) and, consequently, these offenders may be more prone to repeat violent offences. These researchers also found that 6% of the offenders recidivated within the first year, followed by 4% for years two and three, 2 to 3% recidivated for years four and five, and 1% from five years and onwards. Interestingly, the researchers compared the recidivism rate of these child molesters to a sample of rapists and found that child molesters, following the fifth year, outpaced the rapists in charges of new sexual offences, and by the 25th year there was a 13% difference between the two groups.

Differential rates of recidivism have also been found between sub-types of child molesters. Researchers that have subdivided extrafamilial child molesters and incest offenders have found extrafamilial child molesters re-commit sexual crimes at a higher rate than incest offenders (e.g., Barbaree & Marshall, 1988; Hanson et al., 1993; McCoy, 1997; Motiuk & Brown, 1996). In Motiuk and Brown’s (1996) study of recidivism among released sex offenders, the rate of sexual recidivism of child molesters was twice the rate of incest offenders. There is also evidence to indicate that the rate of recidivism among extrafamilial child molesters is also a function of the sex of the victim, with higher rates reported when the victim is male (e.g., Hanson et al., 1993; Quinsey et al., 1995). These findings however have not been consistent (Abel, Becker, Cunningham-Rathner, Mittelman, & Rouleau, 1988; Marshall & Barbaree, 1988).

In sum, the findings of meta-analytic studies suggest that the rate of sexual recidivism for the general population of sexual offenders tends to be relatively low, ranging from 13% to 26%. In all probability, these statistics are conservative estimates of the rate of sexual recidivism because of variability in research methodology (e.g., sampling techniques and data collection) and follow-up periods of relatively short duration. Further, there is evidence suggesting that recidivism rates vary according to the type of sex offender. Investigators that have compared rates of recidivism between child molesters and rapists have found the sexual recidivism rate tends to be higher among rapists than child molesters during the first five years post-release from an institution. These studies have demonstrated the rate of recidivism of rapists does not decline during these relatively short follow-up periods. That is, rapists present as great a risk during the first year of their release in the community as their fifth year. Studies with longer follow-up periods, however, have shown that child molesters tend to have a greater accumulative rate of recidivism than rapists.

Predicting Recidivism

Only a handful of studies have compared sex offenders that have recidivated with non-recidivists in an effort to isolate characteristics that are unique to these individuals (Firestone et al., 1998, 1999, 2000; Proulx et al., 1997; Rice et al., 2000). In one investigation, rapists who sexually re-offended tended to be younger, had more psychopathic characteristics, had history of violent convictions, and targeted female victims (Rice, Harris, & Quinsey, 1990). Another study compared extrafamilial child molesters who recidivated with those that did not as a function of the nature of their re-offence (Firestone et al., 2000). In this study the sexual recidivists, in comparison to the nonrecidivists, had more problems with alcohol use and demonstrated greater sexual arousal to both stimuli with children as well as assaultive stimuli with children.

Violent recidivists, compared to nonrecidivists, had a history of family violence, demonstrated more psychopathic characteristics, and showed sexual arousal to child stimuli. General recidivists, compared with nonrecidivists, were younger, had completed fewer years of education, and were raised in chaotic home environments (family history of drug abuse, history of criminality, experiencing physical abuse). In comparison to nonrecidivists, general recidivists were aroused to stimuli demonstrating coercive acts with children, shared more psychopathic characteristics, and had a history of violent and general criminal offending.

Much of the current research of sexual offenders is concerned with the isolation of prognostic factors and the prediction of subsequent offending (e.g., Hanson & Bussière, 1998; Hanson et al., 1993; Hanson, Scott, & Steffy, 1995; Greenberg, 1998; Stermac & Hall, 1989). Research examining prediction of recidivism typically involves identifying prognostic static (fixed) and dynamic (changeable) factors. Static factors include age, IQ, and prior criminal history. Dynamic, or changeable, factors include substance abuse, negative attitudes towards woman, and sexual preoccupations (Hanson, 2000). Consequently, an offender's relative risk for subsequent offending may increase or decrease as a function of the number and the combination of static and dynamic factors that he possesses (Hanson & Bussière, 1998). The significance of this research is that the knowledge acquired from these studies may lead to increased efficacy in identifying offenders who are at risk of re-offending and who may be engaged in a stable and chronic pattern of offending.

Hanson & Bussière (1998) used a quantitative review, a meta-analysis, to statistically integrate the empirical research pertaining to prognostic indicators of sexual and nonsexual, violent recidivism of rapists and child molesters. Three

categories of predictor variables were examined: Criminal lifestyle, sexual deviance, and psychological problems and disorders (i.e., psychological adjustment). Of the three categories, the strongest predictors of sexual recidivism were factors related to sexual deviance, as measured by phallometric methods. In particular, offenders who re-committed a sexual crime showed a strong preference for children as sexual partners ($r=.32$) and tended to be sexually aroused by male children ($r=.14$). Further, offenders who showed *any deviant sexual preference* (Hanson & Bussière, 1998, p. 352) were more likely to re-commit a sexual crime ($r=.22$).

Criminal lifestyle variables also had a significant, yet modest, relationship with sexual recidivism. Offenders who had prior sex offences were more likely to re-commit a sexual offence ($r=.19$). Further, offenders who committed sexual offences against a related child victim (i.e., incest offenders) and those who targeted female children were less likely to recidivate ($r=-.11$ and $r=-.14$, respectively). In contrast, offenders who targeted unrelated victims and those who selected male children were more likely to sexually recidivate ($r=.15$ and $r=.11$, respectively). Moreover, offenders who had a history of committing a variety of sex crimes (i.e., rape, exhibitionism, and child molestation) had a higher probability of sexual offending ($r=.10$) than those who committed only one type of sex crime. Offenders with a diagnosis of antisocial personality disorder were also more likely to sexually recidivate ($r=.14$). Offenders who used force or injured their victims were also more likely to re-commit a sexual crime ($r=.25$). Other significant predictors of sexual recidivism included the age of the offender ($r=-.14$) and being single ($r=.11$).

General crime history variables such as a history of juvenile delinquency, prior violent offences, and prior nonviolent offences did not relate to sexual recidivism. Further, neither a history of psychological problems (e.g., low intelligence) nor a

history of psychological disorders (including alcohol abuse) was significantly predictive of sexual recidivism.

Offenders who committed nonsexual, violent crimes tended to be young, single, and of a minority race. The strongest predictors of nonsexual, violent crimes were factors associated with criminal lifestyle. More specifically, Hanson and Bussière (1998) found that rapists were more likely than child molesters to commit nonsexual, violent crimes ($r=.23$ vs. $r=-.16$, respectively). Further, low rates of recidivism were found for nonsexual, violent recidivists who had adult male sexual victims or related victims. Other criminal history variables that were predictive of nonsexual, violent recidivism include a history of juvenile delinquency ($r=.22$), prior violent offences ($r=.21$), and a diagnosis of antisocial personality disorder ($r=.19$), as well as the score on the MMPI-4 Psychopathic Deviate ($r=.13$). Factors related to sexual deviancy (e.g, sexual preference for rape), psychological disorders, and psychological problems were not significantly related to nonsexual, violent recidivism.

Offenders who committed any type of recidivism (i.e., general recidivists) tended to share similar factors as those who solely committed violent offences. Namely, these offenders tended to be young, single, belonging to a minority race, had prior criminal involvement, and had a diagnosis of antisocial personality disorder or psychopathy. General recidivists were also most likely to have used force against their victims and had a higher likelihood to have targeted extrafamilial child victims. Hanson and Bussière (1998) found that measures of sexual deviancy did not predict recidivism of any kind.

In sum, research has identified a host of significant prognostic indicators of sexual, nonsexual, violent, and general recidivism. Sexual recidivism is best

predicted by factors associated with deviant sexual interest (e.g., preference for rape or child molestation, preference for male children, sexual arousal to children) as well as sexual criminal history (e.g., target strangers, male children, diverse sexual crimes). While nonsexual, violent and general recidivism are best predicted by general criminological factors (e.g., age, marital status, prior violent offences) and to a lesser extent by sexual criminal history.

The Present Study

This study had three objectives. The first, and primary, objective was to assess the proportion of recidivism for various types of sex offenders. The criminal activity of these offenders was tracked retrospectively over a time period of 20 years. Few investigations have assessed rates of recidivism of sex offenders using a follow-up period of 10 years or more (Hanson et al, 1993; Prentky et al., 1997; Prentky et al, 1997b; Soothill & Gibbens, 1978). It is recognized in the literature that those studies having longer follow-up periods provide more accurate estimates of recidivism (Furby et al., 1989).

Two important elements were incorporated into the study's design. First, recidivism has been previously measured according to the nature of the first new charge or conviction incurred by an offender (e.g., Dempster & Hart, 2002; Hall & Proctor, 1987; Marshall, 1994; Prentky et al., 1997, Quinsey et al., 1995): If the first new charge incurred by the offender was a sexual charge then the offender was classified as a sexual recidivist. However, if the new charge was a violent offence then the offender was categorized as a violent recidivist. Based on this procedure, researchers may have underestimated the proportion of sexual recidivists because they were not taking into consideration the fact that an offender may have committed a sexual offence some time after the commission of a violent offence. To compensate

for this practice, the proportion of sexual recidivists in this study was calculated as a function of all new sexual offences, irrespective of when these offences occurred during the offender's follow-up period. A similar procedure was performed to calculate the proportion of violent recidivists and general recidivists.

Second, most recidivism studies have examined subjects that are incarcerated in correctional institutions (e.g., Rice, Harris, & Quinsey, 1990; Serin, Mailloux, & Malcolm, 2001), attending treatment programs (e.g., Hanson, Broom, & Stephenson, 2004), or subjects on parole or bail (e.g., Motuik & Brown, 1996). As such, these studies may not be representative of the population of sex offenders in the judicial system. Indeed, nearly 50% of convicted sexual offenders will not receive a sanction of imprisonment (Firestone et al., 1998; Fitzgerald, 1997). Instead, these offenders will be sentenced to probation in the community. In this study, a data set of rapists, extrafamilial child molesters, and incest offenders assessed at the Royal Ottawa Hospital's (ROH) Sexual Behavior's clinic (SBC) was used to estimate rates of recidivism. These offenders were assessed as part of their trial or sentencing procedure. Estimates of recidivism formulated with this population may be more representative of the re-offence rates of the sex offender population than those estimated from samples at psychiatric institutions or federal correctional centers.

The second objective of the study was to examine variability in rates of recidivism. Based on the literature reviewed, re-offence rates of sex offenders tend to differ across empirical studies according to the study population, how recidivism is defined and measured, and the duration of the follow-up period. In the current study, the effects of two methodological factors on the rate of recidivism of sex offenders were evaluated. These factors were: (a) the type of criminal charges that are considered at outcome; and (b) the duration of follow-up period.

The third objective of the study was to explore the relationship between recidivism and a variety of factors including personal characteristics, criminal history, psychological, and physiological factors in a group of rapists, a group of extrafamilial child molesters, and a group of incest offenders. The primary difference between this study and previous investigations is that the sample in this study were sex offenders assessed at time of adjudication, whereas samples used in several other studies have been drawn from sex offender treatment programs (e.g., Barbaree & Marshall, 1988; Hanson et al., 1993; Rice et al., 1991) or from federally incarcerated offenders (e.g., Serin et al., 2001).

Overview of Study

The current investigation has two sections. In the first part, two sources of variation in measures of recidivism were explored. First, the proportion of recidivists in a sample of rapists (i.e., men convicted of a sexual offence against female adults), child molesters (i.e., men convicted of a sexual offence against an unrelated child), and incest offenders (i.e., men convicted of a sexual offence against a related child) was estimated as a function of the type of criminal charges considered at outcome. Criminal offenses were classified into one of three categories: sexual, violent, or general. For each group of sex offenders, the proportion of sexual recidivists, the proportion of violent recidivists, and the proportion of general recidivists were compared. Second, rates of recidivism (i.e., sexual, violent, and general) in the sample of rapists, child molesters, and incest offenders were examined as a function of the length of the follow-up period. The at-risk period in the current investigation was ample enough that the effect of the length of the follow-up period on recidivism rates could be analyzed and the rates of recidivism over time between the three groups could be compared.

The second component of the study explored personal characteristics, criminal history, psychological, and physiological risk factors of recidivism in a group of rapist, a group of extrafamilial child molesters, and a group of incest offenders. The design of this section of the study followed the procedure used by McCoy (1997) in her research of psychological, physiological, and offence risk factors in this particular population of sex offenders. Her procedure involved retrospective comparisons of sex offenders who re-offended while living in the community with offenders who did not reoffend. As an additional element to the present study the factors of each category (personal characteristics, criminal history, psychological, and physiological) were statistically evaluated to determine which factors meaningfully predicted sexual re-offending, violent re-offending, and general re-offending.

Based on the literature, the following hypotheses were tested.

Hypothesis One

The percentage of recidivism varies as a function of the sex offender group and the type of criminal charge.

Sub-hypothesis 1.1. The child molester group has a significantly higher proportion of sexual recidivists than the rapists and incest offender groups. The rapist group has a significantly higher proportion of sexual recidivists than the incest offender group.

Sub-hypothesis 1.2. The rapist group has a significantly higher proportion of violent recidivists than either the child molester group or the incest group. The proportion of violent recidivists among the group of child molesters and the group of incest offenders is not expected to differ from each other.

Hypothesis Two.

Percentage of recidivism of each offender type will vary as a function of the length of the follow-up period

Sub-hypothesis 2.1. For each offender group, the percentage of offenders that re-offend will increase as a function of number of years the offender is at-risk to re-commit a sexual offence.

Sub-hypothesis 2.2. Men in the child molester group will take longer to re-offend with a sexual offence, as reflected by average time to re-offend, than men in the rapist group and men in the incest group.

Hypothesis Three.

Recidivists within each group of sex offenders will be significantly different than non-recidivists with respect to personal characteristics, criminal history, psychological, and physiological factors.

Sub-hypothesis 3.1. For each group of sex offenders, recidivists will have significantly higher incidence of negative childhood experiences (i.e. family history of alcoholism, family history of mental illness, family history of criminal activity) than non-recidivists.

Sub-hypothesis 3.2. For each group of sex offenders, recidivists will have a higher incidence of psychopathy than non-recidivists.

Sub-hypothesis 3.3. For each group of sex offenders, recidivists will have significantly higher incidence of alcohol abuse than non-recidivists.

Sub-hypothesis 3.4. For each group of sex offenders, recidivists will show higher degree of deviant sexual arousal, as reflected by a preference for non-consensual sex and/or children as sexual partners, than non-recidivists.

Sub-hypothesis 3.5. For each group of sex offenders, recidivists will have significantly more prior convictions (as reflected by higher number of prior sexual and sexual violent convictions) than non-recidivists.

Sub-hypothesis 3.6. For each group of sex offenders, recidivists will have significantly more “serious” index sexual offenses (as reflected by higher degree of physical and sexual force) than non-recidivists.

Hypotheses Four.

For each group of offenders, the number of prior convictions and charges, degree of force during initial offence, psychopathy, and sexual deviance predicts sexual recidivism.

Hypothesis Five.

For each offender group, previous convictions and charges and the degree of psychopathy predicts violent recidivism.

CHAPTER 2: METHOD

Participants

Participants for the study were drawn from a population of individuals who been assessed at the Sexual Behaviors Clinic (SBC) of the Royal Ottawa Hospital from its inception in 1983 to 1992. The SBC is the primary assessment and treatment facility for the Ottawa-Carleton region and has assessed over 1,700 offenders since its inception in 1983.

For purposes of the study, cases were included if they meet the following criteria: 1) participant was male; 2) participant was 18 years or older; 3) the participant was found guilty of a criminal offence by the Courts and the conviction was for a contact sexual offence; 4) the sexual offense for which the participant was initially referred to the SBC was perpetrated against a child under the age of 16 years, or was perpetrated against a person age 16 years or older; 5) official documentation was available substantiating the charge and/or conviction for which the participant had been referred to the SBC; 6) official information was available regarding subsequent charge and/ or conviction, or had remained free from further criminal offending; and 7) participant had signed an informed consent at the time of their assessment. This form permits researchers to use information obtained from the assessment for research purposes.

A total of 588 individuals were included in the study based on the aforementioned criteria. These individuals were then classified into one of three categories based on their index offense: (1) offenders who offended against female adults (rapists); (2) extrafamilial child molesters (CM); and (3) incest offenders. Definitions used in this study are consistent with those used by McCoy (1997).

Rapists. The Rapist group included 86 men over the statutory age of consent (i.e., 14 years) who had coerced or forced sexual activity on an unrelated individual (male or female) age 16 years or older.

The mean age of the Rapists was 29.38 years ($SD=7.57$), with an age range of 18 to 59 years. The men in the group had a mean level of education of 10.38 years ($SD=2.78$). An overwhelming majority of the men in the Rapist group were never married at time of assessment (78%).

Extrafamilial child molesters. The CM group initially consisted of 206 men who had been charged for a sexual offense against an unrelated female or male child who was under the age of 16 years.

The mean age of the sample of CM was 37.69 years ($SD=12.60$), with their ages ranging between 16 and 75 years. The average level of education was 10.97 years ($SD=3.87$). The majority of subjects (65%) were never married at the time of the assessment.

Incest offenders. The Incest group consisted of 295 men who had perpetrated a sexual act with a family member who was under the age of 16 years at the time of the offense. Men in the Incest group included stepfathers, surrogate grandfathers, uncles, cousins, as well as biological fathers and grandfathers.

The mean age of the sample of incest offenders was 40.97 years ($SD=11.44$), with an age range of 18 to 78 years. The mean level of education was 9.94 years ($SD=2.84$). Nearly half of the sample (46.50%) was never married at the time of their assessment.

Ethics

The current study did not require the active participation of the participants because information was drawn from their records at the Royal Ottawa Hospital. Nonetheless, all identifying information was replaced with a research code to ensure confidentiality of each participant. Appendix A presents a copy of a consent form.

Measures

The data in this study were extracted from two sources. First, data was retrieved from records compiled at SBC. These records consisted of medical reports, phallometric tests, and paper and pencil measures. These resources were reviewed to obtain information about participants' demographic, childhood history, characteristics of the index offense, indices of sexual arousal, an index of psychopathy, and measure of alcohol use.

Second, data was extracted from Canadian Police Information Center (CPIC) records, which were obtained through the Ottawa police. These records provided outcome data and information pertaining to the offender's criminal history.

Medical Records

The medical records provided data on three domains: 1) demographic; 2) historical; and 3) characteristics of the index offence. Table 1 provides a brief description of the variables within each domain. This data is based on the participant's report during psychiatric assessment at SBC.

Table 1.

Demographic, Historical, and Index Offense Variables

Category	Variable	Description
Demographic	Age	Age (in years) at time of assessment
	Marital status	Dichotomous variable reflecting whether the participant was ever married at time of assessment
	Education	Number of years of education attained at time of assessment
Historical Factors	Family mental illness	Presence or absence of reported family history of mental illness
	Family alcoholism	Presence or absence of reported history of alcoholism in the family
	Family criminal history	Presence or absence of reported history of criminal history in family
Index Offense	Relationship to victim	Dichotomously coded as either stranger victim or relation to victim
	Gender of victim	Frequency count of female and male victims
	Age of victims	Dichotomously coded as the male or female victim being either under the age of 16 years or above the age of 17 years
	Degree of sexual assault:	

Category	Variable	Description
	Minor assault	
		This category included sexual acts such as touching and fondling
	Serious assault	This category included sexual acts such as penetration
	Excessive violence	This category included sexual acts involving weapons and/or excessive force
	Influenced by alcohol	Whether or not the offender was under the influence of alcohol during the index offense

Phallometric Tests: Measures of Sexual Arousal

Sexual arousal is part of the routine assessment at SBC and consists of measuring penile tumescence in response to a series of auditory and visual stimuli. Penile tumescence is a response caused by an increase in blood flow into the penis, resulting in an increase in the volume, length, and circumference of the penis. Sexual arousal at the SBC was assessed by measuring penile circumference changes to visual stimuli with an Indium Gallium Strain gauge that is placed around the penis. Conductance changes of the gauge were monitored by a CAT200 analog-to-digital conversion interface and the data were fed into an IBM/PC compatible computer for storage and printout. Galvanic skin responses were simultaneously monitored by the CAT200.

Stimuli presentation. Audiotapes were played on a Realistic portable cassette recorder, and participants listened to them using headphones. The order of stimulus presentation was held constant for all subjects and was computer controlled. Subjects were presented with one or more of three series of audiotapes, according to the nature of the subject's sexual offense. The audiotapes consisted of 120-sec vignettes which described sexual activities varying in age, gender, and degree of consent, coercion, and/or violence portrayed (Abel, Blanchard, & Barlow, 1981). Each subject was presented with a full set containing one vignette from each category following instructions to allow normal arousal to occur. The female child series consisted of descriptions of sexual activity with a female partner/victim for eight categories. The male child series consisted of eight corresponding vignettes involving a male partner/victim but also included one scenario involving an adult female partner. For each of the female child and male child series, two equivalent scenarios for each

category were included. Categories were (a) child initiates, (b) child mutual, (c) nonphysical coercion of a child, (d) physical coercion of child, (e) sadistic sex with child, (f) nonsexual assault of child, (g) consenting sex with female adult, and (h) sex with female child relative (incest).

The audiotape series used to identify sexual attraction to rape included two scenarios of 2-min duration for each of three categories: (a) consenting sex with adult female, (b) rape of adult female, and (c) nonsexual assault of adult female.

Determining the Indices. Participants who offended against children under the age of 16 years were presented with stimuli of either male or female children, depending on the victim gender of the index offense. Those participants who had both male and female victims in their index offense were presented with both male and female stimuli. For these cases, two sets of pedophile indices (PI) were available. For the purpose of the present study, the higher index was used since it suggested a more deviant response and most likely reflected the preferred gender for sexual activity.

Calculation of the Indices: Pedophile Index, the Pedophile Assault Index, the Rape Index, and the Assault Index. In the study, sexual deviancy was assessed with four indices. The first index, the pedophile index (PI), assessed the participant's preference for children as a sexual partner. Research suggests that this index is very good at discriminating the sexual preference of sexual offenders for children in comparison to adults (Barsetti, Earls, Lalumière, & Bélanger, 1998), and it has been found to be a significant predictor of recidivism for extrafamilial child molesters (Hanson & Bussière, 1998; Firestone et al., 2000; Proulx et al., 1997). The PI was calculated by dividing the participant's highest score to a child initiates or child mutual stimulus by the highest response to an adult consenting stimulus.

The second index, the pedophile assault index (PAI), provided greater specificity of the type of sexual acts preferred by sex offenders. This index measured the extent of sexual arousal to coercive sexuality among sex offenders. In other words, the extent that threats and/or physical coercion during the commission of the sexual act were sexually arousing to the offender. The PAI was computed by dividing the participant's highest score to an assault stimulus involving a child (non-physical coercion, physical coercion, sadistic sex, or nonsexual assault) by the highest score of child initiates or child mutual.

The third index, the rape index (RI), measured the offender's preference for non-consenting sex with an adult. Research has shown that index is very good at discriminating men who prefer coercive sexual interactions from men who prefer consenting sexual interactions (Lalumière & Quinsey, 1993). The RI was computed by dividing the highest score obtained during rape stimuli by the highest score obtained to mutually consenting sexual activities with female adult.

The fourth index, the assault index (AI), measured the offender's arousal to nonsexual aggression with an adult female. The AI was computed by dividing the participant's highest response to a nonsexual assault stimulus by the response to an adult consenting stimulus.

In the present investigation, the extent of sexual deviance of the sample of sex offenders was assessed with two sets of variables: 1) a set of continuous variables reflecting the degree of sexual deviance (i.e., PI, PAI, RI, and AI); and 2) a set of dichotomous variables reflecting the proportion of sexually deviant offenders (i.e., $PI > 1$, $PAI > 1$, $RI > 1$, and $AI > 1$). Research suggests that a cut-off score of 1.00 identifies a substantial number of offenders as sexually deviant with few false positive (Bladder & Marshall, 1989).

Low Responders. Investigators in the area of sex offenders generally agree that subjects who attain less than 10% or even 20% of full erection, or those who have less than 5 mm of change in penile tumescence, constitute low responders (Barbaree & Marshall, 1989; Harris, Rice, Quinsey, Chaplin, & Earls, 1992; Proulx et al., 1997; Quinsey & Laws, 1990; Schouten, & Simon, 1992). At the SBC, a response of 100% (full erection) is believed to be a 30 mm phallometric response. Currently, there is no clear consensus among researchers about the appropriateness of including or excluding low responders from statistical analyses. It follows that some investigators exclude subjects who are deemed low responders according to the aforementioned criteria (i.e., less than 10% full erection or 5 mm change in penile tumescence), whereas other do not exclude any subjects. In the current study, low responders will be included in the statistical analyses based on previous research findings with this sample of offenders, as well as on practical and on theoretical grounds. Past research of recidivism with this particular database has shown that the inclusion or the exclusion of low responders does not alter the statistical findings (e.g., McCoy, 1997). Moreover, from a practical standpoint, the exclusion of low responders reduces the number of subjects, which, in turn, has implications on the interpretation of statistical findings. Finally, from a theoretical standpoint, the exclusion of these participants can create a bias in the sample of sexual offenders by limiting its representativeness (Hall, 1990), and thus, limiting the external validity of the findings.

Psychometric Properties of Phallometric Measures. The psychometric properties of phallometric measures have been well documented (Barbaree & Marshall, 1988; Barsetti et al., 1998; Malcolm et al., 1993; Marshall & Fernandez, 1998; Quinsey & Lalumière, 1993). A literature review of phallometric testing with

sexual offenders by Marshall & Fernandez (1998) suggests that the internal consistency of the measure ranges from moderate to high, suggesting that stimulus items in a category (e.g., forced sex with a child) will consistently produce a response matching the overall response. Barsetti and colleagues (1998) demonstrated the descriptive validity of phallometrically measured sexual arousal with a sample of non-offenders and child molesters (both incest and extra-familial), using the audiotape condition. In comparison to child molesters, non-offenders show a clear preference for stimulus describing a consensual sexual encounter with a female [$t(54) = -2.52$, $p < 0.01$]. Malcolm and colleagues (1993) also examined the discriminant and predictive validity of phallometrically measured sexual age and gender preferences in incarcerated samples of incest child molesters, extra-familial child molesters, and non-child sexual offenders. There was good discriminant validity of both gender and age preference. Offenders showed a significantly greater sexual preference for slides depicting the gender of their latest offense [$F(1,88) = 73.36$, $p < 0.01$] and child molesters showed a greater preference for children than did the non-child sex offenders [$F(1, 89) = 11.89$, $p < 0.01$]. Extra-familial child molesters, in particular, responded significantly more to slides with prepubescent models than to slides with pubescent or adult models [$F(1,89) = 1.46$, $p < .10$]. In addition, phallometric age preference was predictive of future sexual re-offending [$F(2, 78) = 3.81$, $p < 0.03$]. A planned comparison of child molester sexual recidivists with non-recidivists showed that the recidivists had a significantly greater response to children than did the non-recidivists [$F(1,25) = 10.96$, $p < .01$].

Paper and Pencil Inventories

The Psychopathy Checklist-Revised (PCL-R; Hare, 1991). The PCL-R is a 20-item clinical rating scale designed to assess behavior (e.g., impulsivity, risk-taking, and juvenile delinquency) and personality factors (e.g., grandiosity, lack of remorse, and shallow affect) that are considered essential elements of psychopathy. Clinically, psychopathy refers to a collection of affective, interpersonal, and behavioral characteristics (Hare, 1996). These characteristics are as follows: egocentricity, impulsivity, irresponsibility, shallow emotions; lack of empathy, guilt, or remorse; pathological lying; manipulateness; and antisocial behavior (Hare, 1996).

The scale is completed on the basis of information gathered during the interview as well as information from collateral sources (e.g., offense and medical records). Each question is scored on a three-point scale according to specified criteria. Total scores on the PCL-R can range from 0 to 40, and these scores reflect the extent to which the individual fits the prototypical psychopath (Hare, 1996).

Validation studies employing factor analysis have consistently identified a two-factor structure to the PCL-R (e.g., Hare, Harpur, Hakstian, Forth, Hart, & Newman, 1990; Hare, 1996; Hobson & Shine, 1998), with a correlation between factors of 0.5 (Hare, 1996; Hare et al., 1990). Factor 1 taps into the affective and interpersonal features of psychopathy, whereas factor 2 reflects the social deviant features of psychopathy (i.e., antisocial behavior). Scores can be computed for each of these factors.

Research has shown that the PCL-R has exemplary reliability and validity (e.g., Hare et al., 1990). Aggregated alpha coefficient computed on samples of male offenders from Canada and the U.S range from 0.82 to 0.88 (Hare et al. 1990; Serin, 1992). Intraclass correlation coefficients across Canadian forensic samples range from

0.86 to 0.97 (Hare et al., 1990; Harpur, Hakstian, & Hare, 1988; Serin, 1992). The measure has also shown very good reliability with a sample of offenders from England; the internal consistency (as measured by Cronbach alpha) was 0.82 and the interrater reliability (using the Spearman's rho) was 0.87 (Hobson & Shine, 1998). These correlational values are similar to those obtained with North American samples suggesting that the measure also has very good external validity.

The predictive validity of the measure has been found to be very good (Salekin, Rogers, & Sewell, 1996). A meta-analytic review of 18 PCL-R prediction studies found large to moderate effect sizes with respect to predicting violent recidivism and general recidivism (Salekin et al., 1996). Although the meta-analytic review included only three studies to predict sexual sadism or deviant sexual arousal, the mean effect size was in the moderate range ($d=0.61$).

To assess the degree of psychopathy amongst men in this sample of sex offenders, the researcher used total PCL-R scores. In cases in which there was insufficient data to score up to five items, the researcher computed a prorated PCL-R score. Hare and colleagues (1990) used prorated scores in their study examining the psychometric properties of the PCL-R. These researchers found that the PCL-R had excellent reliability, with an aggregated alpha coefficient of 0.88.

In addition, the research examined the proportion of sex offenders with psychopathy. This was accomplished by dichotomously coding PCL-R scores to reflect men with mean scores of 25 and above. Research suggests that this score is a valid cut-off score for assessment of psychopathy (Harris, Rice, & Quinsey, 1994, Rice & Harris, 1997; Serin, 1992). For instance, Rice & Harris (1997) found that a cut-off score of 25 showed good predictive validity between psychopaths (individuals with a score of 25 or higher) and nonpsychopaths (individuals with a score of 24 or

lower). They found that psychopaths were significantly more likely to commit a sexual re-offence than non-psychopaths. Moreover, psychopaths scored significantly higher on measures of sexual deviance than nonpsychopaths.

Michigan Alcohol Screening Test (MAST; Selzer, 1971). The MAST is a self-report questionnaire containing 24 items that assess the extent of alcohol abuse in the respondent. Items on the questionnaire represent common signs of alcohol abuse, including work difficulties, health problems, and alcohol withdrawal symptoms. Questions have a yes/no response format. The total number of yes responses reflects the extent to which alcohol abuse is problematic. Positive responses to items 9, 20, and 21 are deemed diagnostic of alcoholism (Selzer, 1971). The questionnaire takes approximately 15 minutes to complete (Selzer, 1971).

The psychometric properties of the MAST have been established (Selzer, 1971; Watson, Detra, Fox, Ewing, Gearhart, & DeMotts; 1995). The internal consistency has a reported overall alpha coefficient of 0.87, and it is reportedly unaffected by either age or denial of drinking behavior (Magruder-Habid, Durand & Frey as cited in Rabinowitz Greenberg, 1999). It has demonstrated moderate concurrent validity ($Kappa=0.73$) against the Diagnostic Interview Schedule (DIS) criteria for alcohol dependence (Watson et al., 1995). It has also shown a high degree of sensitivity (0.97) and good specificity (0.71) in identifying lifetime alcohol dependence (Watson et al., 1995). This test has been used as a screening tool for alcoholism with populations of sexual offenders (e.g., Allnutt, Bradford, Greenberg, & Curry, 1996).

In the present investigation, the extent of alcohol abuse among the sample of sex offenders was assessed with two sets of variables: 1) a continuous variable reflecting the extent of alcohol use (i.e., total MAST scores); and 2) a dichotomous

variable which served to identify the proportion of offenders with alcoholism. Subjects were dichotomously classified as either scoring above or below a cut-off value of seven. Selzer (1971) notes a total score of seven represents low level of alcoholism.

Outcome Data

Sources of Offense Information. Offense data was gathered from Canadian Police Information Center (CPIC) records, which is a national database of criminal arrests and convictions. Each record contains information concerning the type of offense, the date of the offense, the location of offense, disposition of the incident (i.e., charges, convictions, withdrawn, stay of proceedings, etc.), sentence length, and status of offender. In some cases, the CPIC information contains information regarding the date of release from prison. CPIC information was used to determine if inclusion criteria were met, to determine whether participants had recidivated, and if so, the dates of each re-offense, the nature of new offenses, and the number of new offenses committed by each participant. In addition, CPIC information was used to collect information concerning the offender's criminal history (i.e., number and types of crimes committed prior to the index offense, and age at first offense). A sample of a CPIC is provided in Appendix B.

Description of Recidivism Measure

Recidivism rates were calculated on the basis of the proportion of offenders that re-offended (i.e., obtained either a new charge or conviction). Both conviction and charges were used to measure recidivism because many charges may be dropped or will receive a plea bargain of a lesser charge. It was felt that in using both of these data sources a more accurate reflection of recidivism rates and the proportion of recidivists would be gained than only using charges of offences.

Given that type of offence is one of the indices used to calculate rates of recidivism, a list of all possible offenses was first generated using the Canadian Criminal Code. Criminal offenses were then classified into one of three categories of recidivism based on the type of offence: 1) sexual; 2) violent; and 3) general offences.

Sexual recidivism was defined as criminal charges of either a nonviolent sexual nature (e.g., voyeurism) or a violent sexual nature (e.g., sexual assault causing bodily harm) during the follow-up period. Violent recidivism was defined as charges for violent nonsexual offenses as well as sexual crimes. This category included offenders charged with a violent offense against a person that occurred on the same date or within a month of a sexual charge. As a result of plea-bargaining or insufficient evidence, many offenders were charged with and were processed for a violent offense against a person when the actual offense was sexual (Firestone et al., 1998; Quinsey et al., 1995). Thus, this category may potentially serve to capture offenders who committed a subsequent sexual offence but were charged with a nonsexual crime. Moreover, sexual and nonsexual violent offences are often combined in sexual offender research because it gives “a policy relevant measure of *serious* recidivism” (Hanson et al., 2004, p. 91). Adopting this categorization of offenses may also allow for comparison with previous sex offender recidivism research (e.g., Hanson et al., 2004). General (any) recidivism was defined as any kind of reoffence during the follow-up period. Therefore, this category included sexual, violent, and nonsexual nonviolent offenses.

Calculation of Time “At Risk”

The total number of years participants were followed was dependent on their initial assessment date at the SBC of the Royal Ottawa Hospital. For all participants,

the end of the follow-up period was April 2002; however, the follow-up period start date varied between March 1983 and November 1992.

In order for a participant to qualify as a recidivist, the participant had to be living in the community and free to commit a crime (i.e., he could not have been incarcerated or held in secure custody for reasons of mental illness). The *at risk* period was calculated from the first day of eligibility following the index offense (i.e., release on parole) to the date when a new charge or conviction was incurred. In cases in which the CPIC records included release dates, these dates were used as the first day at risk. However, in cases in which release dates were not provided the release date was calculated based on the participant having served two-thirds of his sentence (i.e. statutory release) for the index offense. Offenders in Canada, regardless of the type of offender, are generally granted a conditional release (i.e., day parole, full parole, or statutory release) from correctional institution prior to their warrant expiry date of their sentence (i.e., the last date of the sentence). The purpose of the release is to allow the offender to serve a portion of his sentence in the community. This provides for a gradual adjustment from a highly regimented prison environment to a less controlled life in the community (Grant & Gillis, 1997). The majority of sexual offenders will receive statutory release; i.e., they are released from their institution into the community at 2/3 of their total sentence (Motiuk, & Brown, 1994).

In cases in which participants were sentenced to community time (and not remanded to an institution), the time *at risk* was calculated from the participant's index date (i.e, date of initial conviction for sexual offense) until his first re-offense, as indicated by the CPIC record.

In several cases within each offender group (R: 4 cases, CM: 7 cases, I: 4 cases), the release date preceded the date of assessment. This situation tended to

occur when a sex crime had been committed prior to inception of SBC and these offenders were later assessed on the request of a court order. In these cases, the release dates were re-coded to correspond to the date of assessment.

Of note, offenders receiving an indeterminate sentence were excluded from the study. The reason that these offenders were excluded was because it could not be ascertained by the available information whether the offender had been released into the community following the index offense. If the offender was not released then he did not have the opportunity to re-offend.

Procedures

The present study did not require the active participation of any subject as all the data was archival. All personal characteristics, criminal history, psychological, and phallometric information was collected from medical records at the SBC at the Royal Ottawa Hospital. Offence information was obtained from CPIC records provided by the Ottawa Police department. In order for the participant to be included in the study, he had to have signed an informed consent at the time of the initial assessment.

The assessment process at the SBC consists of several components. Upon arrival at the SBC, each participant underwent a psychiatric interview with a staff psychiatrist. By a second interview, a diagnosis is rendered based on the diagnostic system of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association 1980 and American Psychiatric Association 1987). During the initial consultation, written consent was obtained for completion of all questionnaires, phallometric testing and biomedical testing (e.g., urinalysis testing), CT scan, and the use of this information for research purposes. The assessment process also included psychological testing, a measure of sexual arousal using

plethysmography, and measures assessing the social and the demographic status of the participant.

In terms of offense information, CPIC records was collected from the Ottawa Police and was matched to participants according to his name, birth date, and Finger Printing System (FPS) number. The FPS number is an identification number assigned by the Canadian correctional system to each offender. The dates and types of offenses committed by participants since their release from either a federal or provincial correctional institution were determined from CPIC records. Offenses were categorized as sexual, violent, or general. All CPIC information regarding the index offense, date of incarceration, date of release, the date of new offense, nature of new offense, sanctions, and information concerning breach of conditions of release was examined where available.

CHAPTER 3: RESULTS

Section Overview

This section is divided into two broad components. In the first component, estimates of recidivism in a group of rapists, group of child molester, and group of incest offenders are presented. Estimates were computed as a function of the criminal offense category considered at outcome as well as the duration of follow-up.

In the second component, analyses of personal characteristics, criminal history, physiological, and psychological risk factors of recidivism in each sex offender group are presented. More specifically, recidivists and non-recidivists of each offender group were retrospectively compared on sets of demographic characteristics, index offense factors, phallometric measures, childhood historical variables, criminal history factors, and psychological factors. Separate comparisons were involved for sexual, violent, and general recidivism. In addition, findings from analyses identifying factors (personal characteristics, criminal history, phallometric, and psychological) that meaningfully predicted sexual reoffending, violent re-offending, and general re-offending are presented.

Statistical Treatment of Data

Prior to performing statistical tests, which were selected according to hypotheses, data was screened using SPSS 12.0 for missing values, outliers, and that the assumptions of the particular tests were met.

The quantity of data missing for each variable was ascertained by running a frequency statistic for each variable, whereas the pattern of missing data was determined through visual inspection of data sets. Missing data presented as a particular problem in the study. Rather than substitute values (for some variables

there was a large amount of missing data), cases were deleted from the analysis for that variable (Tabachnick & Fidell, 1996).

Outlying cases were screened through visual inspection of standardized (Z) scores of individual variables. Cases with standardized values of plus or minus 3.0 were considered potential outliers (Tabachnik & Fidell, 1996). Raw scores of identified outlying cases were adjusted either upwards or downwards according to the direction of the problem. This solution is considered appropriate when deleting cases is undesirable: it allows for the retention of the case while reducing the impact of the outlying case (Tabachnik & Fidell, 1996).

Statistical tests generated by SPSS (e.g., the Levene test and Regression statistics) were used to screen for normality of distribution, heterogeneity of variance, and multicollinearity (Keppell, 1991; Tabachnick & Fidell, 1996).

Descriptions and results of statistical analyses are presented according to study objectives and hypotheses.

Part I: Recidivism

Comparison of Criminal Offense Category by Sex Offender Type

The aim of this section was to examine changes in detected recidivism as a function of offender group and criminal offense category. Estimates of recidivism for each offense category was measured as a function of the occurrence of the specific offense category (i.e., sexual, violent, or any) at any time point within the follow-up period. The follow-up period of the population of male sex offenders in this study ranged between 0.69 years and 20.5 years after the conviction of the index sex offense. Average follow up times were: 11.95 years ($SD = 4.02$) for the men in the rapist group; 12.09 years ($SD = 3.69$) for the men in the child molester group; and 11.47 years ($SD = 3.61$) for the men in the incest group.

Descriptive analysis was undertaken to assess the percentage of recidivism of each offender group as a function of type of criminal offense. Table 2 presents the percentage of recidivism as a function of offender group and criminal charge.

Table 2

Proportion of Recidivism as a Function of Criminal Offence Category and Offender Type

Group	Sexual		Violent		Any	
	n	%	n	%	n	%
Rapist (N=87)	21	24.41	32	37.21	47	56.45
CM (N=206)	47	22.82	70	33.98	95	46.11
Incest (N=295)	29	9.83	59	20.00	81	27.46

A series of multiple one-way chi-square analyses were undertaken to compare the proportion of recidivists in each offender group as a function of the criminal offense charge (Table 3). The significance level for multiple comparisons was adjusted using the Bonferonni test, with critical alpha adjusted to 0.017.

Comparisons were conducted in accordance with stated hypotheses. Namely, with respect to sexual recidivism, child molesters would have a higher percentage of recidivists than rapist and incest offenders, and rapists would have a higher percentage of sexual recidivists than incest offenders. With respect to violent recidivism, it was proposed that rapists would have a higher percentage of violent recidivists than child molester and incest offenders. It was also proposed that child molesters and incest offenders would not statistically differ with respect to their

proportion of violent recidivists. Lastly, it was proposed that rapists would have a higher percentage of general recidivists than child molester and incest groups.

Results of one-tailed multiple chi-square tests indicate that the proportion of sexual recidivists, as defined by new charges or convictions for a sexual offense, in the child molester group was significantly higher than the incest group (22.82% vs. 9.83%, respectively). Moreover, the proportion of sexual recidivists in the rapist group was significantly greater than the proportion in the incest group (24.41% vs. 9.83%, respectively). The number of sexual recidivists in the child molester group and the rapist group was not statistically different.

When violent recidivism was considered, as defined by offenders incurring new charges or convictions for sexual and/or violent offenses, the proportion of violent recidivists in the child molester group was significantly greater than the proportion in the incest group (33.98% vs. 20.00%, respectively). In addition, the proportion of violent recidivists in the rapist group was statistically higher than the proportion in the incest group (37.21% vs. 20.00%, respectively). The proportion of violent recidivists in the child molester group and the rapist group was not statistically different.

Finally, when general (any) recidivism was considered, as defined by offenders incurring any new charge or conviction, the proportion of recidivists in the child molester group was significantly higher than the incest group (46.11% vs. 27.46%, respectively). The proportion of recidivists in the rapist group was significantly greater than the incest group (56.45% vs. 27.46%, respectively), and the proportion of recidivists in the rapist group and the child molester group were not statistically significant.

Table 3

Between-Group Comparisons of Recidivists for Extra-familial Child Molesters, Rapist, and Incest Offender Groups As A Function Of Criminal Offense Category

Groups	N	Comparison % recidivate	$\chi^2 (df=1)$	Difference
Sexual Recidivism				
CM-I	501	22.82 vs. 9.83	14.90 ^{††}	CM>I
CM-R	292	22.82 vs. 24.41	0.02	--
R-I	381	24.41 vs. 9.83	11.18 ^{††}	R>I
Violent Recidivism				
CM-I	501	33.98 vs. 20.00	11.68 ^{††}	CM>I
CM-R	292	33.98 vs. 37.21	0.15	--
R-I	381	37.21 vs. 20.00	9.92 ^{††}	R>I
Any Recidivism				
CM-I	501	46.11 vs. 27.46	17.72 ^{††}	CM>I
CM-R	292	46.11 vs. 56.45	1.44	--
R-I	381	56.45 vs. 27.46	20.87 ^{††}	R>I

Note. CM= Child Molester, R=Rapist, I=Incest.

^{††} $p < .001$, one-tailed

Analysis of Exposure Time

The 588 male sex offenders in this study were discharged over a period of 20.5 years from Federal and Provincial institutions, with a range between 0.69 and 20.5 years. Follow-up time was computed from the release date to the first re-offense date. Average follow-up times were: 11.95 years ($SD = 4.02$) for the men in the rapist group; 12.09 years ($SD = 3.69$) for the men in the child molester group; and 11.47 years ($SD = 3.61$) for the men in the incest group.

A Life Table survival analysis method was used to examine the time spent in the community by each offender group prior to the commission of a sexual, a violent, or a general offense. This method provided the opportunity to assess the probability of each subject in each offender category recidivating for each year time period for up to 20 years of follow-up. Once he re-offended, he was removed from subsequent time periods (Hanson & Thornton, 1999). This statistical method has the additional benefit of including in the analysis all offenders in the sample, those who offended and those that did not offend (Prentky et al., 1997). In essence, this type of analysis takes into account all subjects included in the study, the length of time each offender was followed, and whether or not he committed a new offense (Prentky et al., 1997).

The Life-Table method was selected, rather than a Kaplan-Meier method, because it is the most appropriate with large samples, when the time intervals are measured in discrete intervals, and when the number of subjects entering and leaving the time period is inaccurate (Wright, 2000). Although the end date was known for all offenders, the exact start time was estimated in many cases resulting in time at risk also to be estimated.

It should be noted that random censoring of survival data was used in the study. Random censoring occurs when offenders have a single termination date but

release dates vary. Offenders who were censored were removed from the calculation estimating the proportion of subjects who re-offended by a given month (i.e., survival functions). Censoring increased as the observations approach the end of the study (Allison, 1995). As such, estimates calculated on the basis of these observations late in the study were less stable.

Survival analyses were conducted separately for sexual, violent, and general recidivism as a function of exposure time. Data was grouped into one year intervals. The slope of the curve demonstrates the rate of surviving without a new offence over time. Steep slopes suggest that many offenders are re-offending over a short period of time, whereas more gradual slopes demonstrate that re-offending is more steady and gradual over time.

It was postulated that for each offender group, the percentage of offender that re-offend with a sexual offense would increase as a function of the number of years the offender was at-risk to commit a new sexual offense. It was also postulated that men in the child molester group would take longer to re-offend, as reflected by average time to re-offend, than men in the rapist group and men in the incest group.

Survival curves for sexual recidivism Figure 4 shows the life table survival curves for sexual recidivism of the rapist group, the child molester group, and the incest group as a function of exposure time.

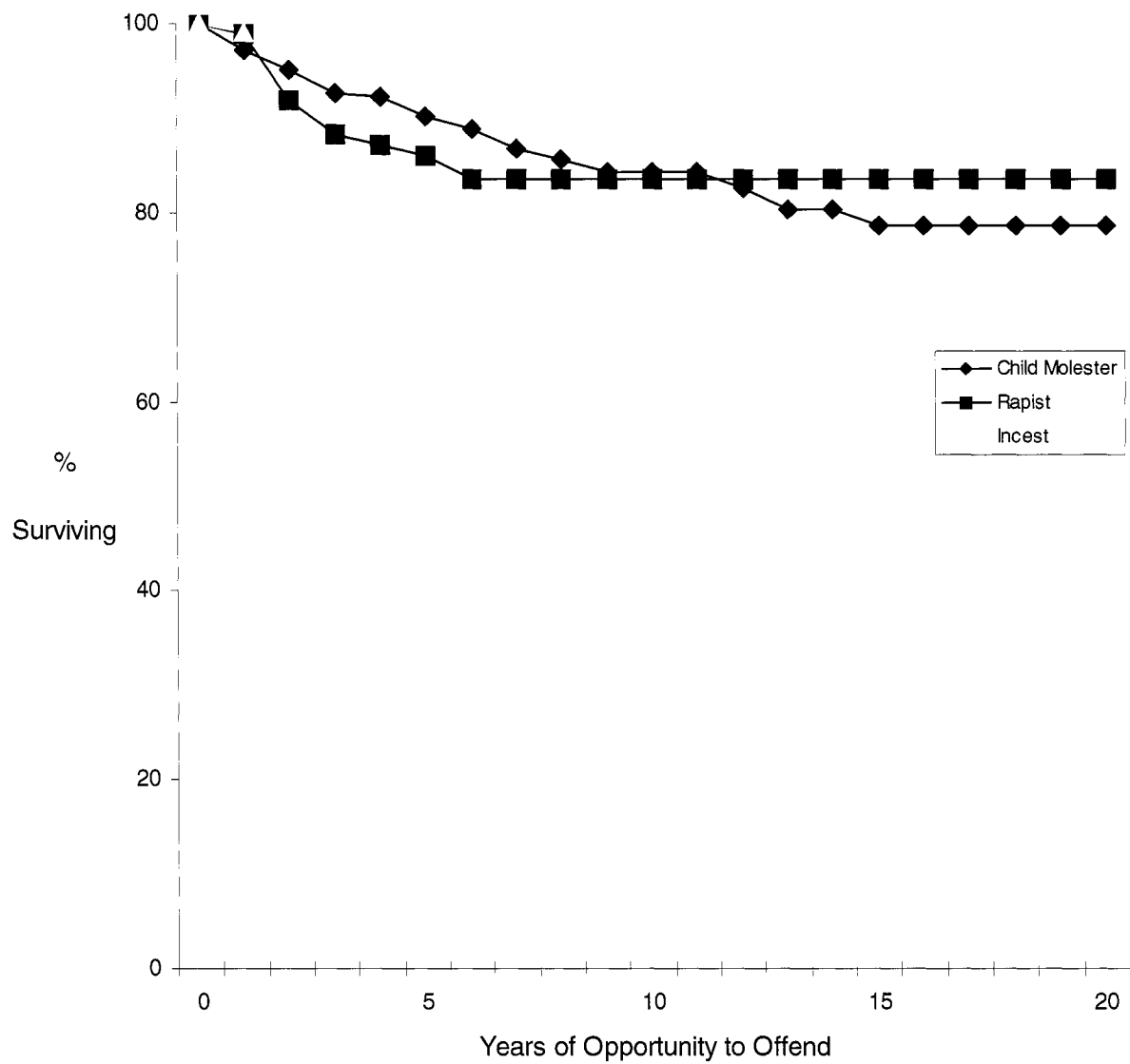


Figure 1. Survival Rates of Sexual Recidivism of Groups of Child Molesters, Rapists, and Incest offenders.

Overall, 20 years after release, the curve of the child molester group appeared steeper than that of the rapist group and the incest group. Notwithstanding the steeper curve of the child molester group, the survival curves between child molester and rapist groups were similar 11 years post-release and there was little difference between the percentage of men recidivating in each group at that time point (84% of men in the child molester group and 83% of men in the rapist group). Thereafter, however, the child molester group outpaced the rapist group and the incest group in the commission of new sexual offenses, with 5% difference between the child molester and rapist groups and a 13% difference between the child molester and incest groups by the end of the follow-up period. By limiting the follow-up time to the conventional 5 years, 36% of cases of sexual recidivism among men in the child molester group would have been missed. Even a 10 year follow-up period would have missed 14% of new recidivism cases in the child molester group.

Although the child molester group had the steepest curve, it is interesting to note that the men in the rapist group tended to recidivate at a faster rate than either the child molester or the incest groups. Overall, it took only six years for the all the sexual recidivists in the rapist group to re-offend, with 75% of the men in the rapist group re-offending sexually in the first three years. In comparison, it took 15 years for the men in the child molester group to recidivate sexually, with 75% of men in the child molester group recidivating within the first 7 years post-release. Similarly, it took 13 years for the men in the incest group to recidivate with a sexual offense, with 75 % of them recidivating within the first six years post-release.

The average time to recidivate sexually was also examined for each group. The men in the rapist group took, on average, 2.56 years ($SD=1.51$) to offend sexually. The men in the child molester group, on average, took approximately 4.92

years ($SD=3.93$) to offend. The men in the incest group took, on average, 3.79 years ($SD=3.28$). Thus, the data provided further support that men in the child molester group took longer, on average, to sexually recidivate in comparison to the men in the rapist group and men in the incest group.

Violent recidivism. Figure 5 displays the survival curves for violent recidivism of the men in the rapist group, the men in the child molester group, and the men in the incest group.

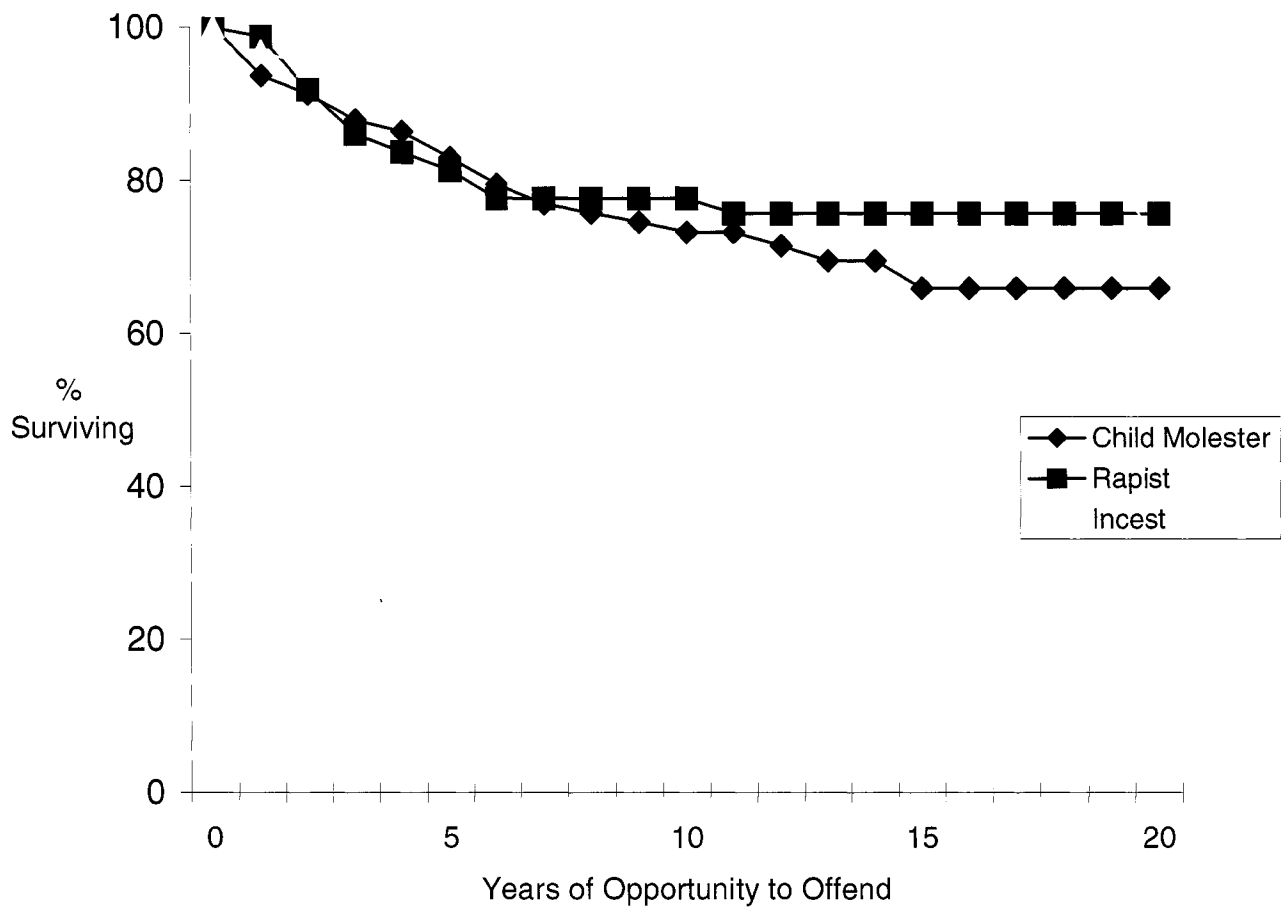


Figure 2. Survival Rates of Violent Recidivism of Child Molester, Rapist, and Incest Offenders

Overall, 20 years after assessment at SBC, the men in the child molester group had the steepest curve, followed by that of the men in the rapist group and the men in the incest group. These findings would suggest that men in the child molester group are the most likely to re-offend with a violent offense. Interestingly, the survival curves of the extrafamilial child molester group and the rapist group had very similar shapes and slopes during the first 11 years post-release, suggesting that they had similar pattern of re-offending. However the curve of the rapist group stabilized at the 11th year, whereas the curve of the extrafamilial child molester group continued its decline until the 13th year and then stabilized, suggesting that there were no new offenses among men in the child molester group after the 14th year. It appeared that the recidivists in the extrafamilial child molester group tended to recidivate over a longer period of time in comparison to recidivists in the rapist group, with 75% of the recidivists in the extrafamilial child molester group recidivating with a violent offense within the first 6 years of post-release. In comparison, 75% of the recidivists in the rapist group recidivated with a violent offense within the first four years post-release.

In comparison to the curves displayed by the extrafamilial child molester and rapist groups, the curve of the men in the incest group showed a steady decline, indicating that their rate of re-offending was more gradual and steady with time. It took approximately 13 years for all the recidivists in incest group to re-offend with a violent offense, with 75% of the recidivists committing a new offense within the first six years post-release.

General recidivism. Figure 6 displays the survival curves of general (any) recidivism of the study's three offender types. The men in the Rapist group had the steepest curve, followed by that of the men in the extrafamilial child molester group and the men in the incest group. Examination of the amount of time it took three-

quarters of the sample to re-offend indicated that 75% of the men in the rapist group recidivated within the first four years post-release. In comparison, 75% of the men in the extrafamilial child molester group and 75% of the men in the incest group re-offended within the first five years post-release. This data suggests that the men in the rapist group appeared to have a higher likelihood of recidivating with a general offense and tended to re-offend somewhat quicker in comparison to the men in the extrafamilial child molester group and men in the incest group.

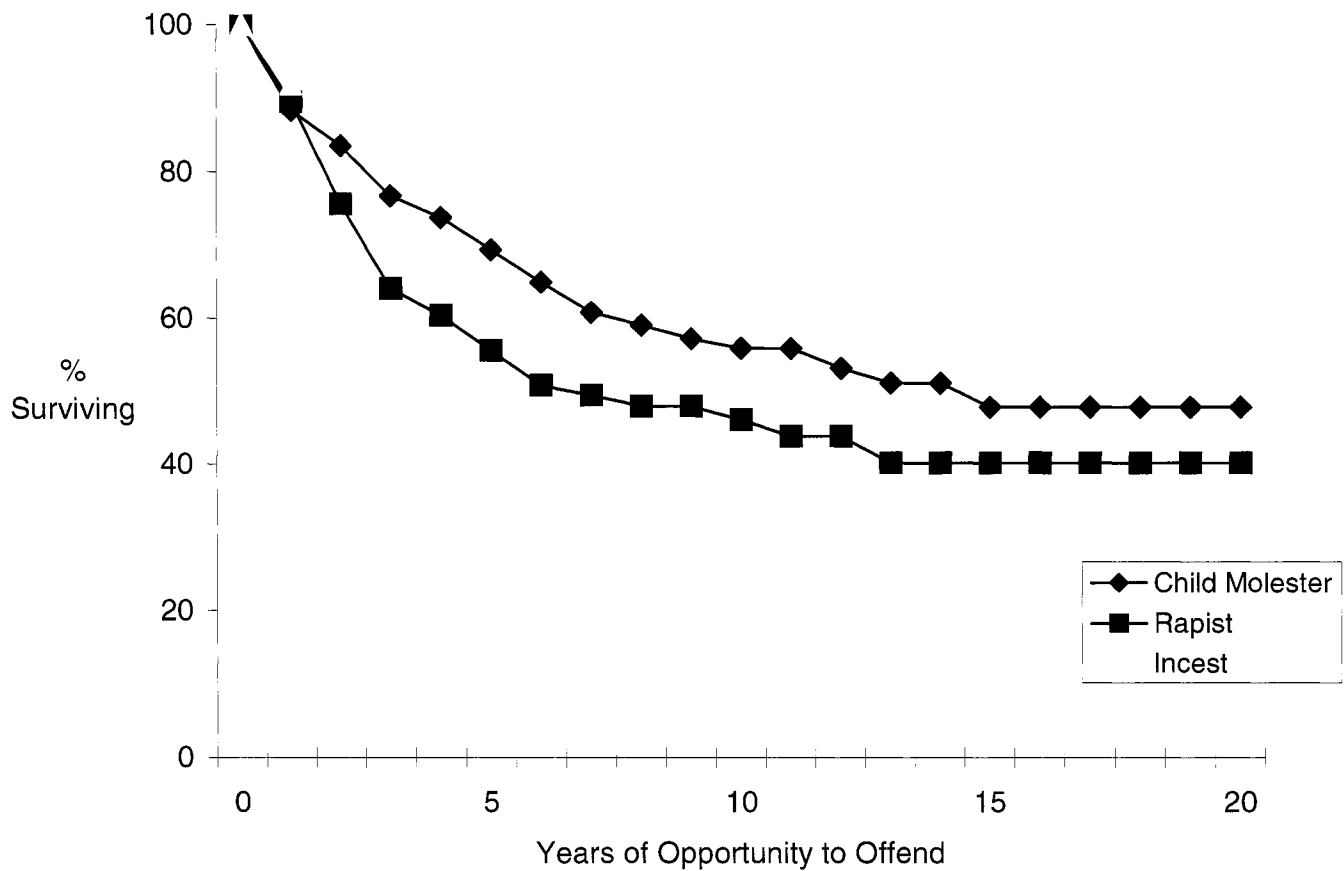


Figure 3. Survival Rates of Child Molesters, Rapist, and Incest Offenders As A Function of General Re-Offending

Summary

In summary, calculation of recidivism varied as a function of the methodological practices employed. First, changes in detected recidivism were noted between groups as function of the offense category. In comparison to the incest group, a greater proportion of men in both the rapist group and the extrafamilial child molester group re-offended sexually, violently, and generally. Interestingly, there was no statistical difference between the proportion of recidivists in the groups of extrafamilial child molesters and rapists.

Second, the rate of recidivism of each offender type varied according to the length of the follow-up period. The men in the extrafamilial child molester group appeared to take the longest to re-offend sexually and violently, and seemed to be at greatest risk to re-offend 10 to 15 years following release. In short, their rate of sexual and violent re-offending surpassed both that of the men in the rapist group and that of the men in the incest group. This was further evidenced when examining the number of years it took for three quarter of the sample to offend with either a new sexual or violent offence. In general, it took longer, as reflected by the number of years, for three-quarter of the sample of recidivists of the extrafamilial child molester group to commit a new offense. In contrast, men in the rapist group displayed the fastest rate of sexual and violent re-offending and were most at risk to re-offend shortly following release, incurring a large part of their new offenses within five years post-release. In addition, the men in the rapist group had a higher rate and higher proportion of criminal re-offenses in comparison to the other two sexual offender types. The men in the extrafamilial child molester group had a higher rate and a higher probability of perpetrating a new criminal offense in comparison to the incest group.

Part 2: Personal characteristics, criminal history, psychological, and physiological risk factors of recidivism within each category of sexual offenders

The overarching aim of this component of the study was to examine demographic characteristics, childhood factors, physiological factors, criminal, and psychological risk factors of recidivism in a group of rapist, a group of extrafamilial child molesters, and a group of incest offenders. It involved two sets of analyses. In the first set of analyses, sex offenders who re-offended while living in the community were retrospectively compared with offenders who did not re-offend. In the second set of analyses, factors were statistically evaluated to determine which factors meaningfully predicted sexual re-offending, violent re-offending, and general re-offending.

Comparison of Recidivists and Non-Recidivists

This section addressed the hypotheses that there would be significant differences between sexual, violent, and criminal recidivists and non-recidivists within each offender category with respect to their demographic background, childhood experiences, incidence of psychopathy, degree of alcoholism (i.e., MAST), degree of deviant sexual arousal, and criminal offense history.

For each category of sex offenders, the data of recidivists and non-recidivists was statistically compared using either a chi square test of independence, or independent samples t-test. In general, categorical data was analyzed with the chi square test of independence, whereas interval data was analyzed with independent samples t-test, one-tailed. A priori comparisons were tested against the critical alpha level of 0.05. For multiple comparisons, the alpha level was set at 0.05. Because of interest in even the smallest differences in the demographic, historical, and criminal characteristics, the researcher did not control for error rate for these variables. In

view of the large number of analyses, and the need to control for type I error completely, the researcher recognized that by controlling for multiple comparisons the adjusted significance level would become so small that it would be unlikely to find differences. The researcher therefore followed the procedure used by McCoy (1997) and Greenberg (1999) and arranged variables into six logical domains: 1) demographic characteristics; 2) childhood historical factors, 3) index offense; 4) sexual deviance; 5) criminal history; and 6) psychological measures.

For data of recidivists and non-recidivists that were statistically examined with the chi square statistic, the phi coefficient (ϕ) was used to depict the measure of association between variables. The phi coefficient ranges between -1.0 and $+1.0$. As a comparative indication of the strength of the measure, Cohen's guidelines for effect size were followed (Wolf, 1986, Cohen, 1992). Although Cohen's guidelines are generally used for the Pearson's r , the guidelines were applied to ϕ on the basis that this statistic could be shown to be mathematically equivalent to the Pearson's r . Thus, the guidelines that were followed were that a modest effect was a value of 0.10, a medium effect was a value of 0.30, and a large effect was 0.50. In correctional research, a measure of association of 0.30 to 0.40 is considered highly significant (Andrews, Zinger, Hoge, Bonta, Gendrea, & Cullen, 1990).

Prior to performing analyses, assumptions of statistical tests were examined. Results of evaluation of assumptions of t-test of independence led to the transformation of variables within groups to reduce skewness and improve homogeneity of variance. For the rapist group, a log transformation was applied the scores on the rape index and the assault index. For the extrafamilial child molester group, square root transformations were used on scores of the pedophile and assault indices. Logarithmic transformations were used on scores on the MAST and PCL-R.

For the incest group, a square root transformation was applied to scores on the MAST and a logarithmic transformation was applied to ages of first offense. Means of untransformed scores are reported when discussing results.

Findings are presented separately for rapist group, extrafamilial child molester group, and incest groups.

Demographic, Historical, Criminal offense characteristics, Physiological, and Psychological Variables for Recidivist and Non-Recidivists Rapist

Sexual recidivism. As illustrated in Table 4, there was a moderate negative relationship, as reflected by the phi-coefficient, between marital status and sexual recidivism ($\Phi=-0.25$). More specifically, fewer recidivists who re-offended with a sexual offense were married at the time of their assessment in comparison to non-recidivists (4.5% vs. 28.6%, respectively). In addition, there was a moderate positive relationship between criminal offense history and sexual recidivism ($\Phi=0.27$). CPIC data revealed that a greater percentage of recidivists had a history of charges than non-recidivists (91% vs. 62%, respectively). There were no significant differences between groups with respect to their index offense history, childhood history, phallometric measures, or psychological test scores.

Table 4

Study Variables and Their Relationship to Sexual Recidivism: Rapist Group

Variable	Recidivists (n=21)	Not Recidivists (n=65)	df	t or χ^2	ϕ
Demographic					
Age at assessment	27.09 $\pm$ 6.43 (22)	30.19 $\pm$ 7.83 (62)	82	1.67	-
Education (yrs.)	9.52 $\pm$ 2.66 (21)	10.69 $\pm$ 2.77 (58)	77	1.66	-
Ever married at time of assessment	4.5 (1)	28.6 (18)	1	5.42*	-0.25
Childhood history					
Family mental illness	33.3 (7)	17.5 (10)	1	2.24	0.17
Family history of alcohol abuse	42.9 (9)	48.3 (28)	1	0.67	0.048
Family history of criminality	10.5 (2)	10.7 (6)	1	0.001	-0.003
Index Offense					
Stranger to victim	57.9 (11)	47.5 (29)	1	0.62	0.08
Influenced by drugs/alcohol	40.9 (9)	63.6 (35)	1	3.31	-0.21
Degree of sexual assault:					
Attempt or touching	27.3 (6)	27.9 (17)	1	0.03	-0.006
Serious assault (penetration)	18.2 (4)	18.0 (11)	1	0.00	0.002
Assault with excessive violence	54.5 (12)	52.5 (32)	1	0.03	0.018
Sexual Deviance					
Rape Index	0.75 $\pm$ 0.67 (21)	0.65 $\pm$ 0.66 (61)	80	-0.60	
Rape index $\geq$ 1	47.6 (10)	34.4 (21)	1	1.16	0.12
Assault Index	0.14 $\pm$ 0.30 (21)	0.26 $\pm$ 0.37 (60)	79	1.31	
Assault index $\geq$ 1	0 (0)	6.7 (4)	1	1.48	-0.14
Offense History					
Age first offense	22.22 $\pm$ 7.54 (22)	25.98 $\pm$ 9.59 (62)	82	1.66	
1 $\geq$ prior sexual offense	27.3 (6)	15.6 (10)	1	1.47	0.13

(Table continues)

Variable	Recidivists (<i>n</i> =21)	Not Recidivists (<i>n</i> =65)	<i>df</i>	<i>t</i> or χ^2	ϕ
1 $\geq$ prior violent offense	63.6 (14)	56.3 (36)	1	0.37	0.06
1 $\geq$ prior offenses	90.9 (20)	62.5 (40)	1	6.26†	0.27
Psychological Measures					
MAST	9.17 $\pm$ 13.24 (6)	12.23 $\pm$ 14.86 (48)	52	0.62	
Mast >7	33.3 (2)	37.5 (18)	1	0.04	-0.03
PCL-R	26.75 $\pm$ 7.18 (20)	24.15 $\pm$ 9.53 (41)	59	-1.08	
PCL-R >25	65.0 (13)	53.7 (22)	1	0.70	0.11

Note. The number of subjects in analyses may differ due to missing or non-interpretable data.

* $p < 0.05$, two-tailed, † $p < 0.05$, one tailed.

Violent recidivism. As indicated in Table 5, there was a moderate negative association between marital status and violent recidivism ($\Phi=-0.24$). That is, men who re-offended with a violent offense were significantly less likely to be married at the time of their assessment than their non-recidivist counterparts (9.4% vs., 30.2%, respectively). There was no significant difference between the groups with respect to their age and years of education.

In terms of childhood factors, as indicated by Table 5, the analyses of data showed a moderate positive relationship between a history of family mental illness and violent recidivism ($\Phi=0.24$). In particular, a larger percentage of recidivists with a violent offense had a history of family mental illness than those who did not commit a violent re-offense (34.5% vs. 14.3%, respectively). No significant differences were found with respect to family history of alcoholism and family history of criminal activity.

Data analyses of characteristics of the index offense and measures of sexual deviance did not revealed significant differences between recidivists and non-recidivists (Table 5).

A comparison of recidivists and non-recidivists demonstrated a relatively strong, positive relationship with respect to prior offense history and violent recidivism ($\Phi=0.30$) (Table 5). CPIC data revealed that a greater percentage of recidivists in the rapist group who re-offended had a history of charges and convictions than those who did not re-offend (87.5% vs. 59.3%, respectively).

Psychological test scores, as described in Table 5, showed that recidivists in comparison to non-recidivists were rated higher on a measure of psychopathy (i.e., PCL-R), suggesting more psychopathic characteristics. However, the percentage of recidivists and non-recidivists achieving a cut-off score of 25 or greater on the PCL-

R, an index of psychopathy, was not statistically different. An examination of the data suggests that over two-thirds of recidivists and nearly half of non-recidivists met this cut-off score on the PCL-R. There was no significant difference between groups with respect to the scores of recidivists and non-recidivists on a measure of alcohol use (i.e, MAST).

Table 5

Study Variables and Their Relationship to Violent Recidivism: Rapist Group

Variable	Recidivists (n=32)	Not Recidivists (n=54)	df	t or χ^2	ϕ
Demographic					
Age at assessment	28.09 $\pm$ 6.20 (32)	30.17 $\pm$ 8.27 (52)	82	1.23	
Education (yrs.)	10.00 $\pm$ 2.62 (31)	10.63 $\pm$ 2.87 (48)	77	-0.98	
Ever married at time of assessment	9.4 (3)	30.2 (16)	1	4.98*	-0.24
Childhood history					
Family mental illness	34.5 (10)	14.3 (7)	1	4.36†	0.24
Family history of alcohol abuse	48.3 (14)	46.0 (23)	1	0.04	0.02
Family history of criminality	11.1 (3)	10.4 (5)	1	0.009	0.011
Index Offense					
Influenced by drugs/alcohol	53.3 (16)	59.6 (28)	1	0.29	-0.06
Stranger to victim	51.9 (14)	49.1 (26)	1	0.06	.03
Degree of sexual assault:					
Attempt or touching	22.6 (7)	30.8 (16)	1	0.65	-0.09
Serious assault (penetration)	19.4 (6)	17.3 (9)	1	0.06	0.03
Assault with excessive violence	58.1 (18)	50.0 (26)	1	0.61	0.08
Sexual Deviance					
Rape Index	0.68 $\pm$ 0.62 (31)	0.68 $\pm$ 0.69 (51)	80	-0.01	
Rape index $\geq$ 1	38.7 (12)	37.3 (19)	1	0.017	0.015
Assault Index	0.18 $\pm$ 0.32 (31)	0.26 $\pm$ 0.38 (50)	79	1.02	
Assault index $\geq$ 1	0 (0)	8.0 (4)	1	2.61	-0.18
Offense History					
Age first offense	22.31 $\pm$ 8.16 (32)	26.04 $\pm$ 9.73 (52)	82	1.32	
1 $\geq$ prior sexual offense	28.1 (9)	13.0 (7)	1	3.05	0.19
1 $\geq$ prior violent offense	68.8 (22)	51.9 (28)	1	2.36	0.17

(Table continues)

Variable	Recidivists (<i>n</i> =32)	Not Recidivists (<i>n</i> =54)	<i>df</i>	<i>t</i> or χ^2	ϕ
1 $\geq$ prior offenses	87.5 (28)	59.3 (32)	1	7.60†	0.30
Psychological Measures					
MAST	16.33 $\pm$ 17.02 (12)	10.62 $\pm$ 13.81 (42)	52	-0.86	
MAST >7	50.0 (6)	33.3 (14)	1	1.11	0.14
PCL-R	27.44 $\pm$ 6.83 (28)	22.93 $\pm$ 9.91 (33)	59	-2.09†	
PCL-R >25	65.4 (17)	46.9 (15)	1	1.99	0.18

Note. The number of subjects in analyses may differ due to missing or non-interpretable data.

**p* < .05, two-tailed, †*p* < .05, one tailed.

General (any) recidivism. As indicated in Table 6, men who committed a general offense were significantly younger, on average, at the time of their assessment than non-recidivists ($M=28$ and 31 years, respectively). No significant difference was found between groups with respect to marital status and years of education.

As shown in Table 6, an analysis of criminal offense data revealed that recidivists, in comparison to non-recidivists, were reported to be significantly younger, on average, when they first began offending ($M=23$ and 28 years, respectively). Moreover, CPIC data revealed that a strong positive relationship between criminal offense history and general recidivism ($\Phi=0.37$), with a higher percentage of recidivists than non-recidivists demonstrating a history of prior offending (85% vs. 51% , respectively). No significant difference was found with respect to prior sexual charges and prior violent charges.

Data analyses of childhood historical factors, offense characteristics, measures of sexual deviance, and scores on psychological measures revealed no significant differences between recidivists and non-recidivists.

Table 6

Study Variables and Their Relationship to General Recidivism: Rapist Group

Variable	Recidivists (n=47)	Not Recidivists (n=39)	df	t or χ^2	ϕ
Demographic					
Age at assessment	27.87 $\pm$ 5.69 (47)	31.30 $\pm$ 9.18 (45)	82	2.10*	
Education (yrs.)	10.30 $\pm$ 2.53 (46)	10.48 $\pm$ 2.53 (35)	77	0.28	
Ever married at time of assessment	17.0 (8)	28.9 (11)	1	1.72	-0.14
Childhood history					
Family mental illness	27.9 (12)	14.3 (5)	1	2.10	0.16
Family history of alcohol abuse	50.0 (22)	42.9 (15)	1	0.40	0.07
Family history of criminality	10.0 (4)	11.4 (4)	1	0.04	-0.02
Index Offense					
Stranger to victim	57.1 (24)	42.1 (16)	1	1.80	0.15
Influenced by drugs/alcohol	61.4 (27)	51.5 (17)	1	0.75	0.10
Degree of sexual assault:					
Attempt or touching	23.9 (11)	32.4 (12)	1	0.74	-0.10
Serious assault (penetration)	15.2 (7)	21.6 (8)	1	0.57	-0.08
Assault with excessive violence	60.9 (28)	43.2 (16)	1	2.55	0.18
Sexual Deviance					
Rape Index	0.60 $\pm$ 0.58 (44)	0.76 $\pm$ 0.75 (38)	80	0.59	
Rape index $\geq$ 1	33.3 (15)	43.2 (16)	1	0.85	-0.10
Assault Index	0.24 $\pm$ 0.36 (45)	0.34 $\pm$ 0.44 (36)	68	1.14	
Assault index $\geq$ 1	0 (0)	11.1 (4)		-	-
Offense History					
Age first offense	22.87 $\pm$ 7.26 (47)	27.70 $\pm$ 10.71 (39)	82	2.46*	
1 $\geq$ prior sexual offense	23.4 (11)	12.8 (5)	1	1.58	0.14
1 $\geq$ prior violent offense	66.0 (31)	48.7 (19)	1	2.60	0.17

(Table continues)

Variable	Recidivists (n=47)	Not Recidivists (n=39)	df	t or χ^2	ϕ
1 $\geq$ prior offenses	85.1 (40)	51.3 (20)	1	11.56 [†]	0.37
Psychological Measures					
MAST	14.10 $\pm$ 14.86 (21)	10.48 $\pm$ 14.50 (9)	52	-.88	
MAST >7	52.4 (11)	27.3 (9)	1	3.47	0.25
PCL-R	26.46 $\pm$ 7.82 (40)	22.21 $\pm$ 10.18 (21)	59	-1.82	
PCL-R >25	65.0 (26)	42.9 (9)	1	2.76	0.21

Note. The number of subjects in analyses may differ due to missing or non-interpretable data. Chi square analyses were not computed for AI $\geq$ 1 because at least one cell had an expected frequency of fewer than five observations.

* $p < .05$, two-tailed, [†] $p < .05$, one tailed.

In summary, sexual recidivists in the rapist group were significantly more likely than non-recidivist to not be married at the time of their assessment and to have had a history of criminal charges and convictions. Violent recidivists, in comparison to non-recidivists, in the rapist group were significantly more likely to not be married at the time of assessment, to have a history of mental illness in their family-of-origin, and to have had a history of criminal offences. Lastly, general recidivists, in comparison to non-recidivists, in the rapist group were significantly more likely to be younger at the time of their assessment, younger at the time of their first criminal offense, and to have had a history of criminal offending.

Demographic, Historical, Criminal offense characteristics, Physiological, and Psychological Variables for Recidivist and Non-Recidivists Extrafamilial Child Molesters

Sexual recidivism. An inspection of Table 7 revealed that men who re-offended with a sexual offense reported significantly fewer years of education than men who did not re-offend sexually ($M=9$ vs. 11 years, respectively). There was no significant difference between groups with respect to age at time of assessment or marital status.

An examination of the data pertaining to childhood historical factors as well as characteristics of the index offense revealed no significant differences between recidivists and non-recidivists (Table 7).

The analyses of measures of sexual deviance in Table 7 revealed that both recidivists and non-recidivists demonstrated high levels of sexual arousal to child stimuli ($M= 1.45$ and 1.40 , respectively), resulting in no significant difference between groups. However, sexual recidivists showed significantly higher sexual arousal than non-recidivists to child assault stimuli than to the child mutual stimuli

(Pedophile Assault Index, $M=1.06$ vs. 0.74). This difference between groups was not clinically significant. That is, recidivists were not significantly more likely to score above a cut-off score of 1, which is highly indicative of sexual deviancy, than non-recidivists. Of clinical significance, however, was the finding that a significantly higher proportion of recidivists than non-recidivists were aroused by adult assault stimuli. There was no significant difference between groups with respect to mean scores on the rape index.

An inspection of the variables in the criminal offense history domain in Table 7 revealed significant differences between sexual recidivists and non-sexual recidivists with respect to their prior criminal offending. That is, an examination of CPIC data showed a weak relationship between violent criminal offense histories and subsequent sexual offending ($\Phi=0.14$), with a greater percentage of recidivists having had violent charges or convictions in their criminal histories (55.3% vs. 38.6%, respectively). The examination of CPIC data also found a weak relationship between criminal offending and subsequent sexual offenses ($\Phi=0.17$), with a greater percentage of recidivists than non-recidivists having criminal acts in their histories (72.3% vs. 51.9%, respectively). There were no significant differences between groups with respect to age of first offense, and a history of sexual charges.

The psychological test scores described in Table 7 revealed that recidivists scored significantly higher on a measure of psychopathy, the PCL-R, than non-recidivists, suggesting that recidivists reported more psychopathic characteristics than non-recidivists. Moreover, the difference between the two groups was clinically significant. That is, there was a relationship of moderate strength between a score above 25 on the PCL-R and sexual recidivism ($\Phi=0.25$), with approximately a greater percentage of the recidivists scoring above 25 in comparison to non-recidivists (40%

vs. 16%, respectively). A score above 25 is generally considered indicative of psychopathy. There was no significant difference between groups with respect to their scores on a measure of alcohol use (i.e, MAST).

Table 7

Study Variables and Their Relationship to Sexual Recidivism: Extrafamilial Child Molester Group

Variable	Recidivists (n=47)	Not Recidivists (n=159)	df	t or χ^2	ϕ
Demographic					
Age at assessment	36.96 $\pm$ 13.20 (47)	37.91 $\pm$ 12.45 (159)	204	0.45	
Education (yrs.)	9.40 $\pm$ 4.21 (42)	11.41 $\pm$ 3.67 (152)	192	3.03*	
Ever married at time of assessment	34.0 (16)	34.9 (52)	1	0.01	-0.008
Childhood history					
Family mental illness	18.6 (8)	16.6 (25)	1	.10	0.02
Family history of alcohol abuse	44.2 (19)	37.7 (58)	1	0.60	0.06
Family history of criminality	14.3 (6)	8.9 (13)	1	1.04	0.07
Index Offense					
Stranger to victim	32.6 (14)	36.0 (54)	1	0.17	-0.03
Male child victims	52.4 (22)	53.4 (63)	1	0.01	-0.009
Female child victims	59.5 (25)	50.4 (59)	1	1.03	0.08
Influenced by drugs/alcohol	31.6 (12)	28.0 (30)	1	0.17	0.03
Degree of sexual assault:					
Attempt or touching	39.0 (16)	48.7 (55)	1	1.28	-0.09
Serious assault (penetration)	46.3 (19)	46.0 (52)	1	.001	0.003
Assault with excessive violence	14.6 (6)	5.3 (6)	1	3.64	0.15
Sexual Deviance					
Rape index	0.66 $\pm$ 0.66 (42)	0.53 $\pm$ 0.65 (145)	185	-1.10	
Rape index $\geq$ 1.00	26.9 (39)	31.0 (13)	1	0.27	0.04
Assault index	0.36 $\pm$ 0.50 (42)	0.24 $\pm$ 0.44 (145)	155	-1.38	
Assault index $\geq$ 1.00	23.8 (10)	11.0 (16)	1	4.44†	0.15
Pedophile index	1.45 $\pm$ 1.41 (43)	1.40 $\pm$ 1.58 (114)	155	-0.81	

(Table continues)

Variable	Recidivists (n=47)	Not Recidivists (n=159)	df	t or χ^2	ϕ
Pedophile index ≥ 1	55.8 (24)	46.5 (43)	1	1.09	0.08
Pedophile assault index	1.06 $\pm$ 0.75 (43)	0.74 $\pm$ 0.65 (112)	153	-2.64†	
Pedophile assault index ≥ 1	53.5 (23)	39.3 (44)	1	2.55	0.13
Offense History					
Age first offense	31.80 $\pm$ 13.78 (46)	34.19 $\pm$ 14.06 (159)	203	1.02	
1 $\geq$ prior sexual offense	42.6 (20)	29.6 (47)	1	2.79	0.12
1 $\geq$ prior violent offense	55.3 (26)	38.6 (61)	1	4.14†	0.14
1 $\geq$ prior offenses	72.3 (34)	51.9 (82)	1	6.16†	0.17
Psychological Measures					
MAST	12.77 $\pm$ 14.07 (40)	6.50 $\pm$ 9.32 (113)	133	-1.87	
MAST >7	45.5 (10)	31.0 (35)	1	1.74	0.11
PCL-R	21.06 $\pm$ 7.23 (40)	16.99 $\pm$ 7.83 (110)	148	-2.92†	
PCL-R >25	39.5 (15)	16.0 (17)	1	8.89†	0.25

Note. The number of subjects in analyses may differ due to missing or non-interpretable data.

*p<.05, two-tailed, † p<0.05, one-tailed.

Violent recidivism. Table 8 revealed that for any new violent charge or conviction, extrafamilial child molester recidivists were significantly younger than non-recidivists ($M=34.5$ vs. 39.3 years) and had completed fewer years of education ($M=9.6$ vs. 11.7 years). There were no significant difference between groups with respect to years of education and marital status.

An examination of Table 8 revealed no significant difference between recidivists and non-recidivists with respect to childhood historical factors and characteristics of their index offense.

An inspection of the measures of sexual deviance in Table 8 showed that men in the extrafamilial child molester group who re-offended with a violent offense displayed higher sexual arousal than non-recidivists to child assault stimuli than to the child mutual stimuli (Pedophile Assault Index, 0.96 vs. 0.74). This difference, however, was not clinically significant. There was no significant difference between groups with respect to their arousal to adult rape stimuli, and arousal to child stimuli.

Analyses of CPIC data (Table 8) revealed that violent recidivists were younger than non-recidivists (29.1 vs. 35.9 yrs) at the time of their first criminal offense. In addition, there was weak but significant relationship between a history of violent offenses and violent recidivism, as reflected by the phi co-efficient ($\Phi=0.19$). More specifically, a larger percentage of recidivists than non-recidivists had a history of violent offenses (55.7% vs. 35.6% , respectively). Moreover, a history of criminal offenses was a relatively strong correlate of violent recidivism, as reflected by the phi co-efficient ($\Phi=0.28$). An examination of the percentages in Table 8 indicates that a larger percentage of recidivists than non-recidivists had a history of criminal offences (75.7% vs. 46.7% , respectively). There was no significant difference between

recidivists and non-recidivists with respect to their history of sexual charges and convictions.

The psychological test scores described in Table 8 indicate that recidivists had higher mean scores on a measure of alcohol use (i.e., the MAST) than the non-recidivists ($M=11.28$ and 6.16 , respectively), although the difference between the groups was not considered clinically significant. A score of seven or greater is indicative of alcoholism. On a measure of psychopathy (i.e., the PCL-R), recidivists had higher scores than non-recidivists ($M=21.75$ vs. 15.70 , respectively) and this difference was clinically significant. That is, a greater percentage of recidivists than non-recidivists scored within a range indicative of psychopathy (41.1% vs. 10.2% , respectively). This last finding, as illustrated by the phi co-efficient, is of some significance. The strength of the measure of association between PCL-R and violent recidivism was strong ($\Phi=0.36$), suggesting a strong relationship between psychopathy in this sample of child molesters and violent recidivism.

Table 8

Study Variables and Their Relationship to Violent Recidivism: Extrafamilial Child Molester

Variable	Recidivists (n=70)	Not Recidivists (n=136)	df	t or χ^2	ϕ
Demographic					
Age at assessment	34.54 $\pm$ 12.56 (70)	39.32 $\pm$ 12.34 (45)	204	2.61*	
Education (yrs.)	9.55 $\pm$ 3.66 (64)	11.68 $\pm$ 3.79 (130)	192	3.72*	
Ever married at time of assessment	32.9 (23)	35.7 (45)	1	0.16	-0.03
Childhood history					
Family mental illness	20.6 (13)	15.3 (20)	1	0.87	0.07
Family history of alcohol abuse	43.1 (28)	49 (37.1)	1	0.65	0.06
Family history of criminality	14.8 (9)	7.9 (10)	1	2.15	0.11
Index Offense					
Stranger to victim (versus acquaintance/friend)	28.1 (18)	38.8 (50)	1	2.12	-0.10
Male child victims	47.5 (29)	56.6 (56)	1	1.23	-0.09
Female child victims	62.3 (38)	46.9 (46)	1	3.56	0.15
Influenced by drugs/alcohol	32.1 (18)	27.0 (24)	1	2.30	0.13
Degree of sexual assault:					
Attempt or touching	39.7 (23)	50.0 (48)	1	1.56	-0.10
Serious assault (penetration)	48.3 (28)	44.8 (43)	1	0.18	0.03
Assault with excessive violence	12.1 (7)	5.2 (5)	1	2.37	0.12
Sexual Deviance					
Rape index	0.65 $\pm$ 0.67 (64)	0.51 $\pm$ 0.64 (123)	185	-1.38	
Rape index $\geq$ 1.00	31.3 (20)	26.0 (32)	1	0.57	0.06
Assault index	0.33 $\pm$ 0.48 (64)	0.24 $\pm$ 0.43 (123)	185	-1.40	
Assault index $\geq$ 1.00	18.8 (12)	11.4 (14)	1	1.91	0.10
Pedophile index	1.35 $\pm$ 1.49 (95)	1.51 $\pm$ 1.60 (62)	155	-0.63	

(Table continues)

Variable	Recidivists (n=70)	Not Recidivists (n=136)	df	t or χ^2	ϕ
Pedophile index ≥ 1.00	53.2 (33)	46.3 (44)	1	0.72	0.07
Pedophile assault index	0.96 $\pm$ 0.77 (62)	0.74 $\pm$ 0.61 (93)	153	-1.95†	
Pedophile assault index ≥ 1.00	45.2 (28)	41.9 (39)	1	0.16	0.03
Offense History					
Age first offense	29.13 $\pm$ 13.00 (69)	35.94 $\pm$ 13.97 (136)	203	3.38†	
1 $\geq$ prior sexual offense	37.1 (26)	30.1 (41)	1	1.03	0.07
1 $\geq$ prior violent offense	55.7 (39)	35.6 (48)	1	7.67†	0.19
1 $\geq$ prior offenses	75.7 (53)	46.7 (63)	1	15.83†	0.28
Psychological Measures					
MAST	11.28 $\pm$ 12.98 (36)	6.16 $\pm$ 9.05 (99)	133	-1.98†	
MAST >7	45.5 (10)	31.0 (35)	1	1.74	0.11
PCL-R	21.75 $\pm$ 7.45 (59)	15.70 $\pm$ 7.20 (91)	148	-4.96	
PCL-R >25	41.1 (23)	10.2 (9)	1	18.83†	0.36

Note. The number of subjects in analyses may differ due to missing or non-interpretable data.

*p<05, two-tailed, † p<.05, one-tailed

General recidivism. As demonstrated in Table 9, men in the extrafamilial child molester group who committed a new offense were, on average, younger than their non-recidivist counterparts at the time of their assessment ($M= 34.2$ vs. 40.7 yrs, respectively), and recidivists had received significantly fewer years of education than non-recidivists (9.4 vs. 11.9 years, respectively). There was no significant difference between the groups with respect to marital status.

As reflected in Table 9, there was no significant difference between recidivists and non-recidivists with respect to childhood historical factors and characteristics of their index offense.

As revealed in Table 9, criminal recidivists showed higher sexual arousal than non-recidivists to adult rape than adult mutually consenting stimuli (0.68 vs. 0.46 , respectively), although this difference was not clinically significant. In addition, recidivists displayed higher sexual arousal to child assault stimuli than to child mutual stimuli (0.98 vs. 0.68 , respectively). This difference between the groups was also not clinically significant. There was no significant difference between groups with respect to assault index and the pedophile index.

Analyses of the criminal offense history variables, as demonstrated in Table 9, revealed that recidivists were younger, on average, than non-recidivists at the time of their first criminal offense ($M=28.8$ vs. 37.8 years). In addition, the strength of the association between a history of violent offenses and general recidivism was in the modest range ($\Phi=0.20$), indicating a moderate relationship between a history of violent offending and general recidivism. An inspection of CPIC data revealed that a higher percentage of general recidivists, in comparison to non-recidivists, had a history of violent crime (52.6% vs. 33.3% , respectively). Furthermore, the strength of the association between general (any) recidivism and a history of violent offending

was in the modest range ($\Phi = 0.28$), indicating a moderate relationship between a history of charges and convictions and recidivism. More specifically, CPCI data indicated that a greater percentage of recidivists than non-recidivists had a history of offenses (71.6% vs. 43.2%, respectively). There was no significant difference between recidivists and non-recidivists with respect to a history of sexual charges or convictions.

Examination of scores on the psychological measures revealed that recidivists scored higher than non-recidivists on the measure of psychopathy ($M = 21.75$ vs. 15.70, respectively), indicating more psychopathic characteristics. Moreover, this difference between groups was considered clinically significant, as reflected by the strong measure of association ($\Phi = 0.36$). More specifically, a greater percentage of recidivists than non-recidivists scored above the cut-off score of 25 (36.6 vs. 8.2%, respectively), suggesting a greater percentage of recidivists in the child molester group could be classified as psychopaths than non-recidivists. There was no significant difference between groups with respect to alcohol use, as reflected by scores on the MAST.

Table 9

Study Variables and Their Relationship to General Recidivism: Extrafamilial Child Molester Group

Variable	Recidivists (n=95)	Not Recidivists (n=111)	df	t or χ^2	ϕ
Demographic					
Age at assessment	34.16 $\pm$ 12.08 (95)	40.72 $\pm$ 12.30 (111)	204	3.85*	
Education (yrs.)	9.84 $\pm$ 3.43 (89)	11.93 $\pm$ 3.98 (105)	192	3.88*	
Ever married at time of assessment	31.5 (29)	37.5 (39)	1	0.77	-0.06
Childhood history					
Family mental illness	20.5 (18)	14.2 (15)	1	1.35	0.08
Family history of alcohol abuse	42.2 (38)	36.4 (39)	1	0.68	0.06
Family history of criminality	14.0 (12)	6.9 (7)	1	2.58	0.12
Index Offense					
Stranger to victim (versus acquaintance/friend)	29.5 (26)	40.0 (42)	1	2.29	-0.11
Male child victim	51.3 (40)	54.9 (45)	1	0.21	-0.04
Female child victim	57.7 (45)	48.1 (39)	1	1.45	0.10
Influenced by drugs/alcohol	34.7 (25)	23.3 (17)	1	2.30	0.13
Degree of sexual assault:					
Attempt or touching	40.5 (30)	51.3 (41)	1	1.77	-0.11
Serious assault (penetration)	48.6 (36)	43.8 (35)	1	0.37	0.05
Assault with excessive violence	10.8 (8)	5.0 (4)	1	1.81	0.11
Sexual Deviance					
Rape index	0.68 $\pm$ 0.68 (87)	0.46 $\pm$ 0.61 (100)	185	2.37†	
Rape index $\geq$ 1	32.2 (28)	24.0 (24)	1	1.55	0.09
Assault index	0.32 $\pm$ 0.47 (87)	0.22 $\pm$ 0.43 (100)	185	-1.72	
Assault index $\geq$ 1	18.4 (16)	10.0 (10)	1	2.74	0.12
Pedophile index	1.51 $\pm$ 1.61 (78)	1.32 $\pm$ 1.45 (79)	155	-0.72	

(Table continues)

Variable	Recidivists (n=95)	Not Recidivists (n=111)	df	t or χ^2	ϕ
Pedophile index > 1	52.6 (41)	45.6 (36)	1	0.16	0.03
Pedophile assault index	0.98 $\pm$ 0.72 (78)	0.68 $\pm$ 0.62 (77)	153	-2.73†	
Pedophile assault index $\geq$ 1	50.0 (39)	36.4 (28)	1	2.94	0.14
Offense History					
Age first offense	28.79 $\pm$ 12.27 (94)	37.77 $\pm$ 14.10 (111)	203	4.82*	
1 $\geq$ prior sexual offense	37.9 (36)	27.9 (31)	1	2.32	0.11
1 $\geq$ prior violent offense	52.6 (50)	33.3 (37)	1	7.81†	0.20
1 $\geq$ prior offenses	71.6 (68)	43.2 (48)	1	16.71†	0.28
Psychological Measures					
MAST	10.16 $\pm$ 12.45 (57)	5.60 $\pm$ 8.25 (78)	133	-1.86	
MAST > 7	40.4 (23)	28.2 (22)	1	2.19	0.13
PCL-R	21.11 $\pm$ 7.82 (75)	15.07 $\pm$ 6.68 (75)	148	-5.11†	
PCL-R > 25	36.6 (26)	8.2 (6)	1	16.80*	0.34

Note. The number of subjects in analyses may differ due to missing or non-interpretable data.

*p<.05, two-tailed, † p<.05, one-tailed

In summary, sexual recidivists in the extrafamilial child molester group, in comparison to non-sexual recidivists, had received significantly fewer years of education. Sexual recidivists also reported higher levels of sexual arousal to child assault stimuli than non-recidivists, and a greater proportion of recidivists than non-recidivists were aroused by adult assault stimuli. In addition, a greater percentage of sexual recidivists than non-recidivists had a history of violent and criminal offending. Moreover, sexual recidivists were more likely than non-recidivists to score within a clinical range on a measure of psychopathy.

Violent recidivists, in comparison to non-recidivists, were younger at the time of their assessment and had fewer years of education. Similar to sexual recidivists, violent recidivists were more likely than non-recidivists to have higher levels of sexual arousal in response to child assault stimuli. Moreover, violent recidivists in comparison to non-recidivists were younger at the time of their first offense and to have a history of violent and criminal offending. Violent recidivists were more likely than non-recidivists to report problems with alcohol use. A greater percentage of violent recidivists, like sexual recidivists, were likely to score within the psychopathic range of the PCL-R.

Finally, general recidivists, in comparison to non-recidivists, were younger in age and had fewer years of education. General recidivists were more likely than non-recidivists to be sexually aroused by adult rape scenarios and child assault scenarios. Moreover, general recidivists were younger than non-recidivists at the time of their first criminal offense, and a greater percentage of general recidivists than non-recidivists had a history of violent and general offending. General recidivists, similar

to sexual and violent recidivists, were more likely than non-recidivists to be classified as psychopaths, as indicated by the PCL-R.

Demographic, Historical, Criminal offense characteristics, Physiological, and Psychological Variables for Recidivist and Non-Recidivist Incest Offenders

Sexual recidivism. An examination of the data in Table 10 indicates that recidivists were significantly younger than non-recidivists at the time of assessment of their index offense (35.7 vs. 41.6 years, respectively). Moreover, a significantly greater percentage of sexual recidivists than non-recidivists were under the influence of a substance during the commission of the index offense (47.6% vs. 26.9%, respectively). The relationship between the offender acting under the influence of a substance and sexual recidivism was modest ($\Phi=0.14$).

An inspection of the CPIC data, as reflected in Table 10, revealed that at the time of their first criminal offense sexual recidivists were significantly younger than non-recidivists (29.4 vs. 37.5 yrs, respectively).

Scores on psychological measures, as illustrated in Table 10, demonstrate that recidivists had higher scores on measure of alcohol use (i.e. MAST) than non-recidivists ($M=16.53$ vs. 8.57 , respectively), suggesting that recidivists had a greater proclivity for alcohol use than non-recidivists. However, this significant difference between recidivists and non-recidivists was not considered clinically significant. An examination of scores on the PCL-R revealed that recidivists scored higher than non-recidivists on the PCL-R ($M= 22.7$ vs. 17.40 , respectively), indicating more psychopathic characteristics. Moreover, this difference between groups was considered clinically significant, as reflected by the measure of association that was of moderate strength ($\Phi=0.28$). More specifically, a greater percentage of general recidivists than non- recidivists scored above the cut-off score of 25 (45.5 vs.12.8%,

respectively), suggesting that recidivists had a higher likelihood than non-recidivists to be diagnostically classified as psychopaths using the PCL-R.

Table 10

Study Variables and Their Relationship to Sexual Recidivism: Incest Group

Variable	Recidivists (n=29)	Not Recidivists (n=266)	df	t or χ^2	ϕ
Demographic					
Age at assessment	35.66 $\pm$ 11.96 (29)	41.55 $\pm$ 11.25 (266)	293	2.66*	
Education (yrs.)	9.89 $\pm$ 2.87 (27)	9.94 $\pm$ 2.84 (236)	261	0.09	
Ever married at time of assessment	37.5 (9)	55.5 (106)	1	2.78	-0.11
Childhood history					
Family mental illness	29.2 (7)	16.1 (36)	1	2.56	0.10
Family history of alcohol abuse	47.8 (11)	47.3 (106)	1	0.02	0.03
Family history of criminality	20.8 (5)	10.4 (23)	1	2.36	0.10
Index Offense					
Male child victims	9.1 (2)	14.5 (25)	-	-	-
Female child victims	95.5 (21)	93.1 (161)	-	-	-
Influenced by drugs/alcohol	47.6 (10)	26.9 (47)	1	3.92†	0.14
Degree of sexual assault:					
Attempt or touching	29.2 (7)	36.0 (68)	1	0.43	-0.04
Serious assault (penetration)	62.5 (15)	57.7 (109)	1	0.20	0.03
Assault with excessive violence	8.3 (2)	6.3 (12)	1	0.14	0.02
Sexual Deviance					
Rape index	0.61 $\pm$ 0.77 (27)	0.59 $\pm$ 1.24 (248)	273	-0.47	
Rape index ≥ 1	29.6 (8)	25.0 (62)	1	0.28	0.03
Assault index	0.26 $\pm$ 0.44 (27)	0.27 $\pm$ 0.60 (248)	273	-0.36	
Assault index ≥ 1	11.1 (3)	13.3 (33)	1	0.10	-0.02
Pedophile index	1.16 $\pm$ 1.41 (22)	0.84 $\pm$ 1.00 (187)	207	-1.05	
Pedophile index ≥ 1	50.0 (11)	38.5 (72)	1	1.09	0.07
Pedophile Assault index	-	-	-	-	-

(Table continues)

Variable	Recidivists (n=29)	Not Recidivists (n=266)	df	t or χ^2	ϕ
Offense History					
Age first offense	29.35 $\pm$ 12.68 (29)	37.48 $\pm$ 13.68 (265)	292	3.06†	
1 $\geq$ prior sexual offense	20.7 (6)	16.9 (45)	1	0.26	0.03
1 $\geq$ prior violent offense	34.5 (10)	26.3 (70)	1	0.88	0.06
1 $\geq$ prior offenses	58.6 (17)	44.7 (119)	1	2.03	0.08
Psychological Measures					
MAST	16.53 $\pm$ 17.25 (17)	8.57 $\pm$ 11.92 (195)	210	-2.27†	
MAST >7	52.9 (9)	35.4 (69)	1	2.07	0.10
PCL-R	22.71 $\pm$ 6.49 (23)	17.40 $\pm$ 6.53 (177)	198	-3.67†	
PCL-R >25	45.5 (10)	12.8 (22)	1	15.10†	0.28

Note. The number of subjects in analyses may differ due to missing or non-interpretable data.

For variables male child victims and female child victims, chi square analyses could not be computed because at least one cell had fewer than five individuals. No phallometric tests with child assault stimuli had been conducted with this group of offenders. As a consequence, the pedophile assault indices (PAI) could not be computed.

*p<.05, two tailed, † p<0.05, one-tailed

Violent recidivism. An inspection of Table 11 revealed that violent recidivists were significantly younger than non-recidivists at the time of assessment (35.2 vs. 42.4 years, respectively). Moreover, a relationship of modest strength was found between married status and violent recidivism ($\Phi = -0.14$), with violent recidivists significantly less likely than non-recidivists to ever be married at the time of their assessment (40.4% vs. 57.1%, respectively).

As indicated in Table 11, a relationship of modest strength was noted for two of the three childhood historical factors and violent recidivism; that is, mental illness ($\Phi = 0.12$) and family history of alcohol abuse ($\Phi = 0.14$). Namely, more recidivists compared to non-recidivists had a history of mental illness in their family-of-origin (27.1% vs. 15.1%, respectively), and more recidivists than non-recidivists had a history of alcohol abuse in their family-of-origin (61.7% vs. 44.0%, respectively).

The analyses of index offense factors, as revealed in Table 11, found that the only discriminating factor between recidivists and non-recidivists was whether the offender had been under the influence of a substance at the time of his index offense. There was a moderate association, as reflected by the measure of association, between the offender reporting he was under the influence of a substance during the index offense and violent recidivism ($\Phi = 0.23$). That is, a greater percentage of recidivists than non-recidivists reported that they were under the influence of a substance at the time of their index offense (48.8% vs. 23.5%, respectively).

Analyses of CPIC data, as described in Table 11, found that violent recidivists were significantly younger than non-recidivists when they were charged or convicted of their first offense (28.1 vs. 38.8 yrs, respectively). A significant, albeit modest, relationship ($\Phi = 0.11$) was found between history of violent offenses and violent recidivism. In comparison to non-recidivists, a greater percentage of violent

recidivists had a history of violent offense charges and convictions (37.3% vs. 24.6%, respectively). There was a moderate association between a history of criminal charges and convictions and violent recidivism ($\Phi=0.22$), with a greater percentage of recidivists than non-recidivists having a history of offenses (67.8% vs. 40.7%, respectively).

Lastly, an inspection of scores on the psychological measures, as reflected in Table 11, revealed that recidivists had higher scores on a measure of alcoholism, as measured by the MAST (17.88 vs. 7.56, respectively). This difference between recidivists and non-recidivists was considered clinically significant. More specifically, there was a moderate association between recidivists who had scores of 7 or greater on the MAST and violent recidivism ($\Phi=0.20$). That is, a greater percentage of recidivists than non-recidivists scored within a clinical range on measures of problematic alcohol use (58.8% vs. 32.6%, respectively). In addition, recidivists had higher scores than non-recidivists on the PCL-R, a measure of psychopathy ($M=21.32$ vs. 17.05, respectively). This difference was also considered clinically significant, with a moderate association between scores of 25 or greater on the PCL-R and violent recidivism. A greater percentage of recidivists than non-recidivists scored above 25 on the PCL-R, suggesting a higher incidence of psychopathy among recidivists (30.2% vs. 12.6%, respectively).

Table 11

Study Variables and Their Relationship to Violent Recidivism: Incest Group

Variable	Recidivists (n=59)	Not Recidivists (n=236)	df	t or χ^2	ϕ
Demographic					
Age at assessment	35.24 $\pm$ 10.56 (59)	42.41 $\pm$ 11.22 (236)	293	4.44*	
Education (yrs.)	9.81 $\pm$ 2.34 (54)	9.97 $\pm$ 2.96 (236)	261	0.35	
Ever married at time of assessment	40.4 (19)	57.1 (96)	1	4.12*	-0.14
Childhood history					
Family mental illness	27.1 (13)	15.1 (30)	1	3.88†	0.12
Family history of alcohol abuse	61.7 (29)	44.0 (88)	1	4.78†	0.14
Family history of criminality	18.8 (9)	9.6 (19)	1	3.21	0.11
Index Offense					
Male child victims	9.1 (4)	15.2 (23)	-	-	-
Female child victims	95.5 (42)	92.7 (140)	-	-	-
Influenced by drugs/alcohol	48.8 (21)	23.5 (36)	1	10.42†	0.23
Degree of sexual assault:					
Attempt or touching	32.6 (15)	35.9 (60)	1	0.17	-0.03
Serious assault (penetration)	58.7 (27)	58.1 (97)	1	0.006	0.005
Assault with excessive violence	8.7 (4)	6.0 (10)	-	-	-
Sexual Deviance					
Rape index	0.75 $\pm$ 1.21 (54)	0.56 $\pm$ 1.19 (221)	273	-1.03	
Rape index $\geq$ 1	31.5 (17)	24.0 (53)	1	1.29	0.07
Assault index	0.36 $\pm$ 0.88 (54)	0.24 $\pm$ 0.49 (221)	273	-0.75	
Assault index $\geq$ 1	13.0 (7)	13.1 (29)	1	0.001	-0.002
Pedophile index	1.05 $\pm$ 1.31 (45)	0.83 $\pm$ 0.96 (187)	207	-0.62	
Pedophile index $\geq$ 1	44.4 (20)	38.4 (63)	1	0.54	0.05
Pedophile assault index	-	-	-	-	-

(Table continues)

Variable	Recidivists (n=59)	Not Recidivists (n=236)	df	t or χ^2	ϕ
Offense History					
Age first offense	28.12 $\pm$ 10.36 (58)	38.79 $\pm$ 13.72 (236)	292	5.80 $\dagger$	
1 $\geq$ prior sexual offense	20.3 (12)	16.9 (39)	1	0.48	0.04
1 $\geq$ prior violent offense	37.3 (22)	24.6 (58)	1	3.86 $\dagger$	0.11
1 $\geq$ prior offenses	67.8 (40)	40.7 (96)	1	13.97 $\dagger$	0.22
Psychological Measures					
MAST	17.88 $\pm$ 16.66 (34)	7.56 $\pm$ 10.92 (178)	210	-3.95 $\dagger$	
MAST >7	58.8 (20)	32.6 (58)	1	8.45 $\dagger$	0.20
PCL-R	21.32 $\pm$ 6.17 (45)	17.05 $\pm$ 6.60 (155)	198	-3.87 $\dagger$	
PCL-R >25	30.2 (13)	12.6 (19)	1	7.57 $\dagger$	0.20

Note. The number of subjects in analyses may differ due to missing or non-interpretable data.

For variables male child victims and female child victims, chi square analysis could not be computed because at least one cell had fewer than 5 individuals. No phallometric tests with child assault stimuli had been conducted with this group of offenders. As a consequence, the pedophile assault index (PAI) could not be calculated. * $p < .05$, two-tailed, $\dagger p < 0.05$, one-tailed.

General recidivism. An inspection of Table 12 revealed that men in the incest group who were charged or convicted of a new offense were significantly younger than non-recidivists ($M=35.3$ vs. 42.1 years). There was no significant difference between the groups with respect to their marital status at the time of the new offense or their number of years of education.

An examination of childhood historical factors, as described in Table 12, highlighted a relationship of modest to moderate strength between violent recidivism and two of the three childhood historical factors; that is, family history of criminal activity ($\Phi=0.19$) and alcohol abuse ($\Phi=0.22$). Namely, a greater percentage of recidivists in comparison to non-recidivists had a history of criminality in their family-of-origin (21.2% vs. 7.8%), and more recidivists than non-recidivists had a history of alcohol abuse in their family-of-origin (61.7% vs. 44.0%, respectively). There was no significant difference between recidivists and non-recidivists with respect to a history of mental illness in the family-of-origin.

As illustrated by Table 12, only one of the index offense characteristics differentiated between recidivists and non-recidivists: Offender's drugs/alcohol use at time of index offense. The association between this variable and general recidivism was moderate ($\Phi=0.26$), with a larger percentage of incest recidivists than non-recidivists reported to be under the influence of a substance during the commission of their index offense (46.7% vs. 21.3%, respectively). Number of female victims, number of male victims, or the level of force did not significantly differentiate between recidivists and non-recidivists.

An inspection of their criminal offense history (Table 12), as reflected by CPIC data, revealed that recidivists in the Incest group were, on average, significantly

younger than non-recidivists at the time of their first offense ($M=28.5$ vs. 39.7 yrs., respectively). In addition, a modest correlation was revealed between a history of violent charges and recidivism ($\Phi=0.11$), with a greater percentage of recidivists having a history of violent charges and convictions (37.0% vs. 23.4% , respectively). There was also a moderate relationship between a history of offenses and any recidivism ($\Phi=0.22$), with a greater percentage of recidivists than non-recidivists had a history of charges or convictions (64.2% vs. 39.3% , respectively).

An examination of scores on psychological measures, as reflected in Table 12, showed that recidivists tended to score higher on a measure of alcohol use, the MAST, than non-recidivists ($M=16.33$ vs. 7.11 , respectively). The difference between recidivists and non-recidivists was considered to be clinically significant, with a moderate level of association between recidivists who scored seven and above and recidivism ($\Phi=0.28$). That is, a greater percentage of recidivists than non-recidivists received scores on the MAST indicative of problematic alcohol use (61.2% vs. 29.4% , respectively). Moreover, recidivists were more likely to score higher on a measure of psychopathy (i.e., PCL-R), than non-recidivists ($M=21.35$ vs. 16.52 , respectively). Once again, the difference between recidivists and non-recidivists was considered clinically relevant, with a moderate association between men scoring above 25 on the PCL-R and recidivism ($\Phi=0.24$). An examination of scores on the PCL-R revealed that a greater proportion of recidivists than non-recidivists scored within a range indicative of psychopathy (30.0% vs. 10.4% , respectively).

There was no significant difference between groups with respect to their degree of sexual deviance.

Table 12

Study Variables and Their Relationship to General Recidivism: Incest Group

Variable	Recidivists (n=81)	Not Recidivists (n=214)	df	t or χ^2	ϕ
Demographic					
Age at assessment	35.28 $\pm$ 10.51 (81)	42.13 $\pm$ 11.05 (214)	293	5.51*	
Education (yrs.)	9.88 $\pm$ 2.43 (75)	9.96 $\pm$ 2.99 (188)	261	0.20	
Ever married at time of assessment	43.8 (28)	57.6 (87)	1	3.47	-0.13
Childhood history					
Family mental illness	22.7 (15)	15.5 (28)	1	1.77	0.08
Family history of alcohol abuse	66.2 (43)	40.7 (74)	1	12.49†	0.22
Family history of criminality	21.2 (14)	7.8 (14)	1	8.64†	0.19
Index Offense					
Male child victims	11.5 (7)	14.9 (20)	1	0.42	-0.05
Female child victims	95.1 (58)	92.5 (124)	-	-	-
Influenced by drugs/alcohol	46.7 (28)	21.3 (29)	1	12.96*	0.26
Degree of sexual assault:					
Attempt or touching	30.2 (19)	37.3 (56)	1	1.00	-0.07
Serious assault (penetration)	63.5 (40)	56.0 (84)	1	1.02	0.07
Assault with excessive violence	6.3 (4)	6.7 (10)	-	-	-
Sexual Deviance					
Rape index	0.61 $\pm$ 0.90 (75)	0.52 $\pm$ 0.70 (200)	273	-0.35	
Rape index ≥ 1	30.7 (23)	23.5 (47)	1	1.48	0.07
Assault index	0.27 $\pm$ 0.46 (75)	0.23 $\pm$ 0.43 (200)	273	-0.83	
Assault index ≥ 1	13.3 (10)	13.0 (26)	1	0.005	0.004
Pedophile index	0.96 $\pm$ 1.23 (63)	0.82 $\pm$ 0.87 (146)	207	-0.34	
Pedophile index ≥ 1	42.9 (27)	38.4 (56)	1	0.37	0.04
Pedophile assault index	-	-	-	-	

(Table continues)

Variable	Recidivists (n=81)	Not Recidivists (n=214)	df	t or χ^2	ϕ
Offense History					
Age first offense	28.49 $\pm$ 10.75 (80)	39.74 $\pm$ 13.56 (214)	292	7.08*	
1 $\geq$ prior sexual offense	21.0 (17)	15.9 (34)	1	1.07	0.06
1 $\geq$ prior violent offense	37.0 (30)	23.4 (50)	1	5.56†	0.14
1 $\geq$ prior offenses	64.2 (52)	39.3 (84)	1	14.72†	0.22
Psychological Measures					
MAST	16.33 $\pm$ 15.47 (49)	7.11 $\pm$ 10.85 (163)	210	-4.75†	
MAST >7	61.2 (30)	29.4 (48)	1	16.36*	0.28
PCL-R	21.35 $\pm$ 6.47 (62)	16.52 $\pm$ 6.31 (138)	210	-4.75†	
PCL-R >25	30.0 (18)	10.4 (14)	1	11.50*	0.24

Note. The number of subjects in analyses may differ due to missing or non-interpretable data. For variable female victims, chi square analysis could not be computed because at least one cell had fewer than 5 individuals. No phallometric tests with child assault stimuli had been conducted with this group of offenders; As a consequence, the calculation of pedophile assault indices (PAI) could not be computed. * $p < .05$, two-tailed. † $p < 0.05$, one-tailed.

In summary, sexual recidivists compared to non-recidivists in the incest group were more likely to have committed the index sex offence at a younger age and were more likely to be under the influence of a substance either prior to or during the commission of the offense. These men also tended to be younger than non-recidivists when they committed their first criminal offense, and were more likely to score within a clinical range for psychopathy on the PCL-R.

Violent recidivists in comparison to non-recidivists were significantly younger, had a higher likelihood of not being married at the time of the index offense, and were more likely to be under the influence of a substance at the time of the index offense. These men, relative to the non-recidivists, were likely to have a history of mental illness and/or alcohol use in their family-of-origin. In addition, violent recidivists were likely to have a history of general and violent offending, with many of them accruing their first criminal charge or conviction at a younger age than non-recidivists. Moreover, more violent recidivists than non-recidivists had a problem with alcohol use and scored within a psychopathic range on the PCL-R.

General recidivists were younger than non-recidivists, and a greater percentage of recidivists were under the influence of a substance (i.e., drugs and/or alcohol) at the time of their index offense. Moreover, recidivists compared to non-recidivists were more likely to report a history of alcohol abuse and criminal activity in the family-of-origin. A larger percentage of recidivists than non-recidivists had a history of criminal and violent offending, with recidivists having perpetrated the first criminal offense at a younger age than non-recidivists. Similar to violent recidivists, more general recidivists than non-recidivists had a problem with alcohol use and scored within a psychopathic range on the PCL-R.

Table 13 provides a descriptive overview of variables that differentiated recidivists from non-recidivists within each group of sex offenders as a function of criminal offense category. Three features of table 14 are worth highlighting. First, many of the historical criminal factors differentiated recidivists from non-recidivists within offender groups and across criminal offense categories. Age at first offense and history of prior offenses were particularly indicative of whether or not the offender would recidivate either violently or with any new offense. This finding was common between sex offender types. Second, age at time of assessment consistently differentiated violent and general recidivists and non-recidivists for both the child molester and the incest groups. Third, psychopathy reliably differentiated recidivists in the child molester and incest groups, regardless of offense category.

Table 13

Study Variables Differentiating Recidivists from Non-Recidivists as a Function of Sex Offender Group and Criminal Offense Category

Variable	Rapist			Extra-Familial Child Molester			Incest		
	S	V	A	S	V	A	S	V	A
Demographic									
Age at assessment					✓	✓	✓	✓	✓
Education (yrs.)				✓	✓	✓			
Ever married at time of assessment	✓	✓	✓					✓	
Childhood history									
Family mental illness		✓						✓	
Family history of alcohol abuse								✓	✓
Family history of criminality									✓
Index Offense									
Male child victims									
Female child victims									
Influenced by drugs/alcohol							✓	✓	✓
Degree of sexual assault:									
Attempt or touching									
Serious assault (penetration)									
Assault with excessive violence									
Sexual Deviance									
Rape index						✓			
Rape index ≥ 1									
Assault index									
Assault index ≥ 1				✓					
Pedophile index									
Pedophile index ≥ 1									
Pedophile assault index				✓	✓	✓			
Pedophile assault index ≥ 1									
Offense History									
Age first offense			✓		✓	✓	✓	✓	✓
1 $\geq$ prior sexual offense									
1 $\geq$ prior violent offense				✓	✓	✓		✓	✓
1 $\geq$ prior offenses	✓	✓	✓	✓	✓	✓		✓	✓
Psychological Measures									
MAST					✓			✓	✓
MAST >7								✓	✓
PCL-R		✓		✓		✓	✓	✓	✓
PCL-R >25				✓	✓	✓	✓	✓	✓

Note. S=sexual, V=violent, and A=any offenses.

Prediction of Recidivism

In this section, logistic regression analyses were performed to identify and evaluate factors (personal characteristics, criminal history, physiological, and psychological factors) that meaningfully influenced sexual recidivism, violent recidivism, and general recidivism. Logistic regression analyses were selected because it readily allowed for the prediction of a dichotomous outcome from a set of independent variables that were dichotomous as well as continuous (D'Alessio & Stolzenberg, 2003; Tabachnick & Fidell, 1996).

Data analyses proceeded in three steps. In the first step, forward stepwise logistic regression analyses were performed from sets of variables (e.g., demographic factors, childhood historical factors, criminal historical factors) to screen for factors that were useful (i.e., statistically significant) in predicting the various types of criminal recidivism (i.e., sexual, violent, and general). Separate logistic regressions were run for each cluster of variables. A significance level of .05 to enter was chosen. While the criterion level is quite conservative, initial analyses with an alpha level of .25 and .15, as suggested by Tabachnick and Fidell (1996) and Proulx et al. (1995), resulted in the inclusion of variables that were not significantly and uniquely related to recidivism. The more liberal significance level did not appear to be appropriate given that the aim of this step of the analysis was screening for variables that were associated with recidivism. Separate logistic regression equations were performed for each group of sex offenders.

In the second step, variables identified through the forward stepwise regression were simultaneously entered into a direct logistic regression analysis. The analyses served to identify whether the variables as a set reliably predicted

recidivism and to identify the influence of each of the independent variables while holding other variables constant.

In the third and final step, Receiver Operating Characteristics (ROCs) were computed using the logistic regression scores in the final recidivism models for each offender group. Briefly, ROC analyses assess the ability of a set of scores to predict an event (Catchpole & Gretton, 2003). ROC analysis provides a plot of the sensitivity (i.e., the probability that a decision is positive when the condition of interest is positive) versus specificity (i.e., decision is positive when the condition of interest is absent), and computes the Area under the Curve (Catchpole & Gretton, 2003; Swets, Dawes, & Monahan, 2000). The proportion of the Area under the Curve (AUC) represents the accuracy of prediction, and it is conceptually and numerically equivalent to an effect size (Harris, Rice, Quinsey, Lalumière, Boer, & Lang, 2003). In short, AUC is defined as the probability that a randomly selected individual who recidivated will score higher on the assessment measure than a randomly selected individual who did not recidivate (Catchpole & Gretton, 2003). An advantage of using ROC as a measure of predictive accuracy is that its value is independent of the base rate of the phenomena in the sample at hand and, as such, provides the means to compare the accuracy of different instruments developed on samples with different base rates of for the phenomena (Harris et al., 2003).

It was hypothesized that for each group of sex offenders the number of prior convictions, degree of force during the initial offense, psychopathy, and sexual deviance would significantly predict sexual recidivism. It was also predicted that the previous convictions and the degree of psychopathy would predict violent recidivism.

The findings as they pertain to sexual recidivism, violent recidivism, and general recidivism are presented separately for each sex offender group.

Rapist

Sexual recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables (i.e., age at time of assessment, education, ever married at time of assessment), the sexual recidivism model contained only one variable: marital status. The forward stepwise regression analyses performed on variables of the index offense, childhood background, measures of sexual deviance were not significant. The forward logistic regression analyses of the four variables of the criminal history (i.e., prior sex offences, prior violent offences, any prior offence, age at first offence) resulted in a model containing one variable: prior criminal charges. At the conclusion of the forward logistic regression analyses of the two variables of the psychological measures (i.e., alcohol abuse, psychopathy), the model contained only one variable: total PCL-R score. Because entry was stepwise, it was not legitimate to evaluate the model statistically or assess the predictive power of the model (Tabachnick & Fidell, 1996).

Table 14 provides a summary of the findings for the forward stepwise regression analyses of each set of variables. For each of the variables, Table 14 presents the logit coefficient (B), which provides an index of the direction of the influence of the independent variable on the dependent variable; the Wald statistic, which provides a test of the significance of the independent variable; the Odds Ratio, which provides the ratio of two sets of odds (e.g., recidivating vs. not recidivating); and the 95% Confidence Interval for the Odds Ratio, which presents the range of the odds for two sets of odds.

To illustrate interpretation of the table, at the conclusion of the logistic regression analysis of the demographic variables, the sexual recidivism model

contained only one variable: ever married at time of assessment. The variable had a negative coefficient, suggesting that marital status of single was a risk factor. A test of the significance of the independent variable, based on the logit coefficient and the standard error, resulted in a significant Wald statistic, $\chi^2(1, N=77) = 3.71$, $p < .05$. This finding can be interpreted as meaning that the variable ever married at time of assessment significantly predicted sexual recidivism over and above the other variables. The Odds Ratio can be interpreted as meaning that the odds of sexually re-offending decreased by a multiple of 0.13 by the offender ever being married at time of assessment as opposed to being single at the time of the assessment. The 95% Confidence Interval of the Odds Ratio is interpreted as the odds of sexually re-offending decreased by 50 times by the offender ever being married at times of assessment and increased by 1.04 times by being single, with 95% certainty. Alternatively the odds of sexually offending decreased by 87% by the offender ever being married at time of assessment and increased by 4% by the offender being single, with 95% certainty.

It is worth highlighting that, although the clinical measure of psychopathy achieved the criterion cut-off score to enter the model of sexual recidivism, the variable did not uniquely predict sexual recidivism.

Table 14.

Forward Stepwise Logistic Regression Results For Sexual Recidivism: Rapist Group

Variable Set	B	Wald	Odds Ratio	95% Confidence Interval (CI) for Odds Ratio
Demographic				
Ever married at time of assessment	-2.06	3.71*	0.13	0.02-1.04
Offense history				
1 $\geq$ prior general offenses	1.78	5.09*	5.90	1.26-27.57
Psychological measures				
PCL-R	0.26	3.45	1.30	0.99-1.70

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

The demographic variable ever married at time of assessment and the criminal offense history variable prior general offenses were entered into a direct logistic regression model. (The variable psychological measure was not entered into the full model because the variable did not reliably and uniquely predict sexual recidivism). A test of the full model against a constant-only model was statistically reliable, $\chi^2(2, N=85) = 14.64$, $p < .01$, indicating that the predictors, as a set, reliably distinguished between those who recidivated and those who did not recidivate. Changes in the percentage of variance explained (ΔR^2) cannot be meaningfully interpreted in the logistic regression analyses because of the dichotomous nature of the dependent variable impresses a ceiling on the maximum obtainable R^2 (Gagliardi, Lovell,

Peterson, & Jemelka., 2004). As an alternative, the Nagelkerke adjusted R^2 is used as an index of the predictive power (Pampel, 2000). Predictive accuracy as gauged by the Nagelkerke adjusted R^2 was equal to 0.23, suggesting that variables ever married and prior criminal offenses explained 23% of the variance in sexual recidivism.

According to the Wald statistic, the variable ever married at time of assessment reliably predicted sexual recidivism, $\chi^2(1, N=85) = 4.23$, $p < .05$. The odds ratio of 0.11 indicated that the odds of sexual recidivism decreased by a multiple of 0.11 by the offender having a marital status of ever married at time of assessment as opposed to single (95% CI=0.01-0.89). Prior criminal offenses also predicted sexual recidivism, $\chi^2(1, N=85) = 6.63$, $p < .05$. The odds ratio of 6.63 indicated that the odds of sexually re-offending increased by a multiple 6.63 when the offender had one or more criminal historical charges as opposed to no historical charges (95% CI =1.39-31.63).

Figure 4 provides an illustration of the relationship between the two independent variables, ever married at time of assessment and prior general offenses, and the dependent measure of sexual recidivism. The AUC of 0.74 was significantly greater than chance ($p < .001$), suggesting a fairly strong relationship between the independent variables and sexual recidivism. Stated differently, a value of 0.74 indicated that in comparing the probability of re-offending with that of not re-offending, a researcher could correctly identify those men who will re-offend on 74% of trials based on these two variables.

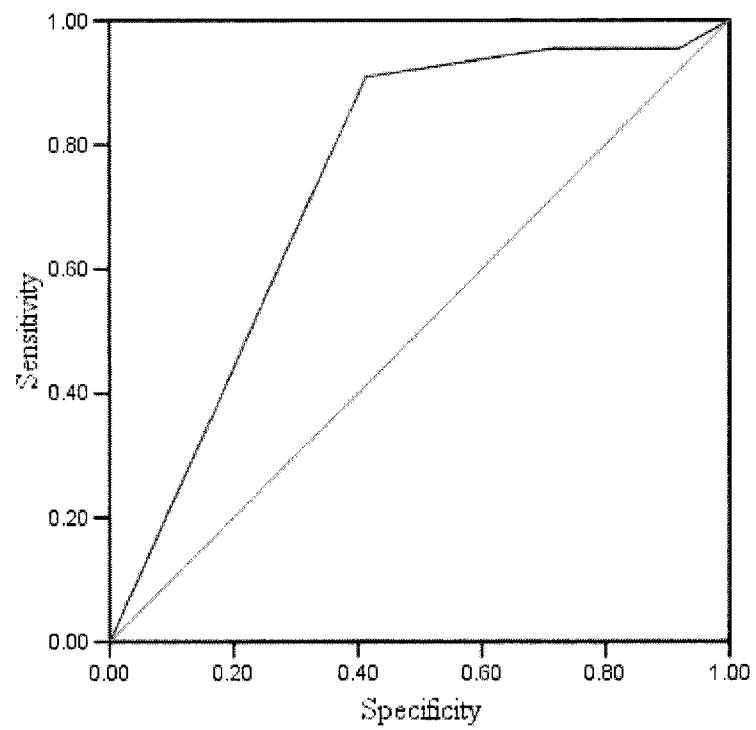


Figure 4. ROC for two factors (ever married, and psychopathy) in predicting sexual recidivism in a group of Rapists.

Violent recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the violent recidivism model contained only one variable: marital status. The forward stepwise regression analysis performed on variables of the index offense was not significant. At the conclusion of the analysis of the three childhood historical factors, the recidivism model contained only one variable: family mental illness. The forward stepwise regression analysis performed on the variables of sexual deviance was not significant. At the conclusion of the forward logistic regression analyses of the four variables of the criminal history, the recidivism model contained only one variable: prior criminal charges. At the conclusion of the forward logistic regression analyses of the two variables of the psychological measures, the recidivism model contained only one variable: total PCL-R score. As previously indicated, because entry was stepwise, it was not legitimate to evaluate the model statistically or assess the predictive power of the model (Tabachnick & Fidell, 1996).

Table 15 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% Confidence Interval for the Odds Ratio of the variables.

Table 15.

Forward Stepwise Logistic Regression Results For Violent Recidivism: Rapist Group

Variable Set	B	Wald	Odds Ratio	95% CI
			Odds Ratio	
Demographic				
Ever married at time of assessment	-1.38	4.02	0.25*	0.07-0.97
Childhood history				
Family mental illness	1.21	4.50	3.36*	1.10-10.30
Offense history				
1 _≥ prior general offenses	1.56	6.63	4.74**	1.45-15.51
Psychological measures				
PCL-R	0.17	5.30	1.19*	1.01-1.39

Note. *p<.05 , two-tailed. **p<.001, two-tailed.

A direct logistic regression analysis was performed on violent recidivism as outcome and four independent variables: ever married at time of assessment, mental illness in the family-of-origin, prior general offenses, and scores on the psychopathy measure.

A test of the full model against a constant-only model was statistically reliable, $\chi^2(2, N=53) = 10.04$, $p<.05$, indicating that the predictors, as a set, reliably distinguished between those who recidivated and those who did not recidivate. The variance in recidivism accounted for was moderate with a Nagelkerke adjusted $R^2 = 0.23$.

Table 16 shows regression coefficients, Wald statistics, and odds ratios for each of the predictors. According to the Wald statistics (see Table 16), only scores on the measure of psychopathy significantly predicted violent recidivism. The odds ratio of 1.09 indicated that a one unit increase in scores on the measure of psychopathy increased the odds of violent recidivism by 1.09 times or by 9%.

Table 16

Direct Logistic Regression Results For Violent Recidivism: Final Model Rapist Group

Variable	B	Wald	Odds	95% CI
			Ratio	Odds Ratio
Ever married at time of assessment	-0.94	1.08	0.39	0.07-2.29
Family history of mental illness	0.40	0.33	1.50	0.38-5.94
1 $\geq$ prior general offenses	0.32	0.14	1.37	0.27-7.09
PCL-R	0.09	3.96	1.09*	1.00-1.19

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 5 provides an illustration of the relationship between the independent variables (ever married, mental illness in the family of origin, prior general offences, and degree of psychopathy) and the dependent measure of violent recidivism. The AUC of 0.73 was significantly greater than chance ($p < .05$), suggesting a fairly strong relationship between the independent variables and violent recidivism.

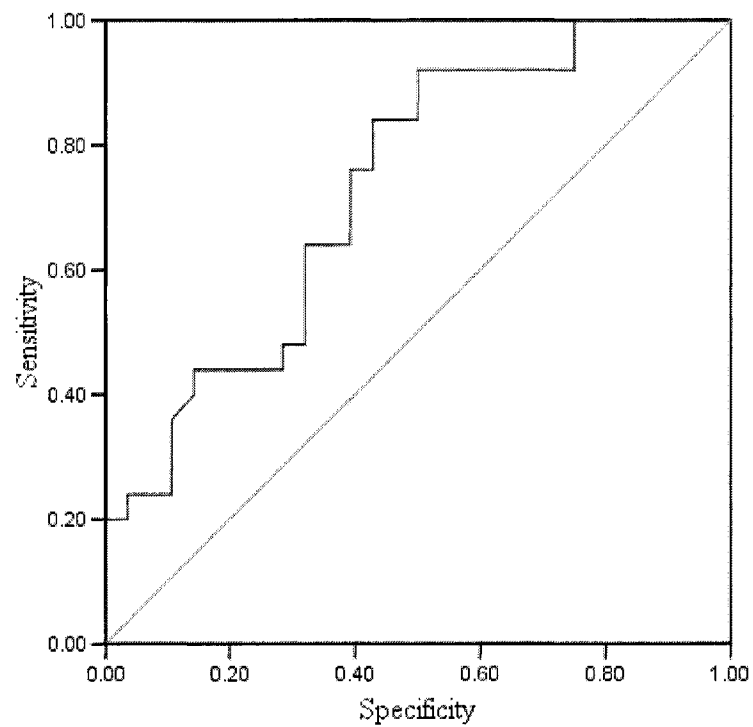


Figure 5. ROC for four factors (ever married, mental illness in the family of origin, prior general offenses, and psychopathy) in predicting violent recidivism in a group of Rapists.

General recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the general recidivism model contained only one variable: age. The forward stepwise regression analysis performed on variables of the childhood factors, index offense, and measures of sexual deviance were not significant. At the conclusion of the forward logistic regression analyses of the four variables of the criminal history, the general recidivism model contained only one variable: prior criminal charges. The forward stepwise regression analysis performed on psychological measures was not significant.

Table 17 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% Confidence Interval for the Odds Ratio for each of the independent variables.

Table 17.

Stepwise Logistic Regression Results For General Recidivism: Rapist Group

Variable Set	B	Wald	Odds Ratio	95% CI Odds Ratio
Demographic				
Age at assessment	-0.08	5.68	0.92*	0.86-0.98
Criminal history				
1 $\geq$ prior general offenses	1.69	10.33	5.41**	1.93-15.16

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

A direct logistic regression analysis was performed on general recidivism as outcome and two independent variables: age and prior general offenses.

A test of the full model against a constant-only model was statistically reliable, χ^2 (, N=84) = 15.84 , $p < .01$, indicating that the predictors, as a set, reliably distinguished between those who recidivated with a general criminal offense and those who did not recidivate. The variance in recidivism accounted for was moderate with a Nagelkerke adjusted $R^2 = 0.23$.

Table 18 shows regression coefficients, Wald statistics, and odds ratios for each of the predictors. According to the Wald statistic (see Table 18), the variable age uniquely predicted general recidivism, $\chi^2(1, N=84) = 3.96$, $p < .05$. The odds ratio of 0.94 indicated that for a one unit increase in age decreased the odds of recidivism by a multiple of 0.94 or by 6 %. Moreover, the variable prior criminal offences uniquely predicted general recidivism, $\chi^2(1, N=84) = 10.29$, $p < .01$. The odds ratio of 5.64 indicated that the odds of criminal re-offending increased nearly six times by the offender having one or more criminal historical charges as opposed to no historical charges.

Table 18

Direct Logistic Regression Results For General Recidivism: Final Model Rapist Group

Variable	B	Wald	Odds Ratio	95% CI Odds Ratio
Age at time of assessment	-0.07	3.96	0.94*	0.87-1.00
1≥prior general offenses	1.72	10.29	5.64**	1.96-16.20

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 6 presents a demonstration of the relationship between the independent variables (age and prior general offenses) and the dependent measure of general recidivism. The AUC of 0.74 was significantly greater than chance ($p < .001$), suggesting a strong relationship between the independent variables and general recidivism.

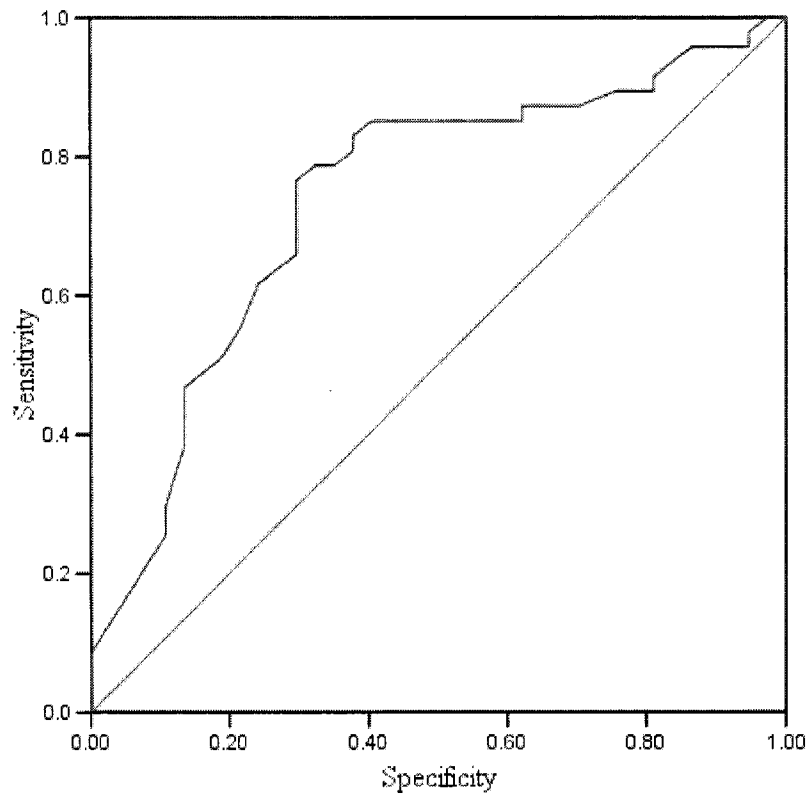


Figure 6. ROC for two factors (age and prior general offenses) in predicting general recidivism in a group of Rapists.

In summary, logistic regression analyses showed that the factors, single marital status and historical charges, significantly predicted sexual recidivism in this sample of Rapists. Each factor contributed to the prediction of sexual recidivism, with the odds of recidivating increasing when the offender was single and with a history of criminal charges.

While the factors of single marital status, family history of mental illness, historical criminal charges, and psychopathy collectively predicted violent recidivism, further investigation revealed that psychopathy alone provided a highly adequate model of violent recidivism. More specifically, for every unit increase in scores on measure of psychopathy the odds of recidivating with a violent offense increased.

The factors age at time of assessment and historical criminal charges predicted general recidivism in this sample of Rapists. Each factor contributed to the prediction of general recidivism. More specifically, the odds of re-offending decreased for every year increase in age and increased for those with historical offenses.

Extrafamilial Child Molester Group

Sexual recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the sexual recidivism model contained only one variable: education. The forward stepwise regression analysis performed on variables of the index offense resulted in the inclusion of one significant factor: excessive force during sex offense. The regression analysis of the three childhood historical factors did not produce any significant factors. The forward stepwise regression analysis performed on the variables of sexual deviance yielded one significant factor: pedophile assault index. At the conclusion of the forward logistic regression analyses of the four variables of the criminal history, the sexual recidivism model contained only one variable: prior criminal charges. At the conclusion of the

forward logistic regression analyses of the two variables of the psychological measures, the sexual recidivism model contained only one variable: total PCL-R score.

Table 19 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% Confidence Interval for the Odds Ratio for each of the independent variables.

Table 19

Stepwise Logistic Regression Results For Sexual Recidivism: Extrafamilial Child Molester Group

Variable Set	B	Wald	Odds Ratio	95% CI
			Odds Ratio	
Demographic				
Education	-0.13	7.66*	0.88	0.80-0.96
Index offense				
Assault with excessive violence	1.32	4.29*	3.74	1.07-13.07
Sexual Deviance				
Pedophile Assault Index	0.67	6.07*	1.96	1.15-3.36
Offense history				
1 $\geq$ prior general offenses	0.87	5.70*	2.38	1.17-4.86
Psychological measures				
PCL-R	0.10	7.46**	1.11	1.03-1.19

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

A direct logistic regression analysis was performed on sexual recidivism as outcome and the five independent variables: years of education, excessive use of force during index sex offense, prior general offenses, and measure of psychopathy.

A test of the full model against a constant-only model was statistically reliable, $\chi^2(5, N=130) = 13.21, p < .05$, indicating that the predictors, as a set, reliably distinguished between those who recidivated with a sexual offense and those who did not recidivate. The variance in recidivism accounted for was moderate with a Nagelkerke adjusted $R^2 = 0.14$.

Table 20 shows regression coefficients, Wald statistics, and odds ratios for each of the predictors. According to the Wald statistics (see Table 20), inclusion of information on a single factor did not improve the prediction of sexual recidivism over and above the remaining factors.

Table 20

*Direct Logistic Regression Results For Sexual Recidivism: Extrafamilial Child**Molester Group*

Variable Set	B	Wald	Odds Ratio	95% CI
			Odds Ratio	
Demographic				
Education	-0.07	1.52	0.93	0.84-1.04
Index offense				
Assault with excessive violence	0.50	0.50	1.66	0.41-6.71
Phallometric responses				
Pedophile Assault Index	0.37	1.46	1.45	0.79-2.67
Offense history				
1 _≥ prior general offenses	0.48	0.99	1.62	0.62-4.23
Psychological measures				
PCL-R	0.04	1.34	1.04	0.98-1.10

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 7 provides a demonstration of the relationship between the independent variables (education, excessive use of force during index sex offense, prior general offenses, and psychopathy) and the dependent measure of sexual recidivism. The AUC of 0.72 was significantly greater than chance ($p < .001$), suggesting a fairly strong relationship between the independent variables and sexual recidivism.

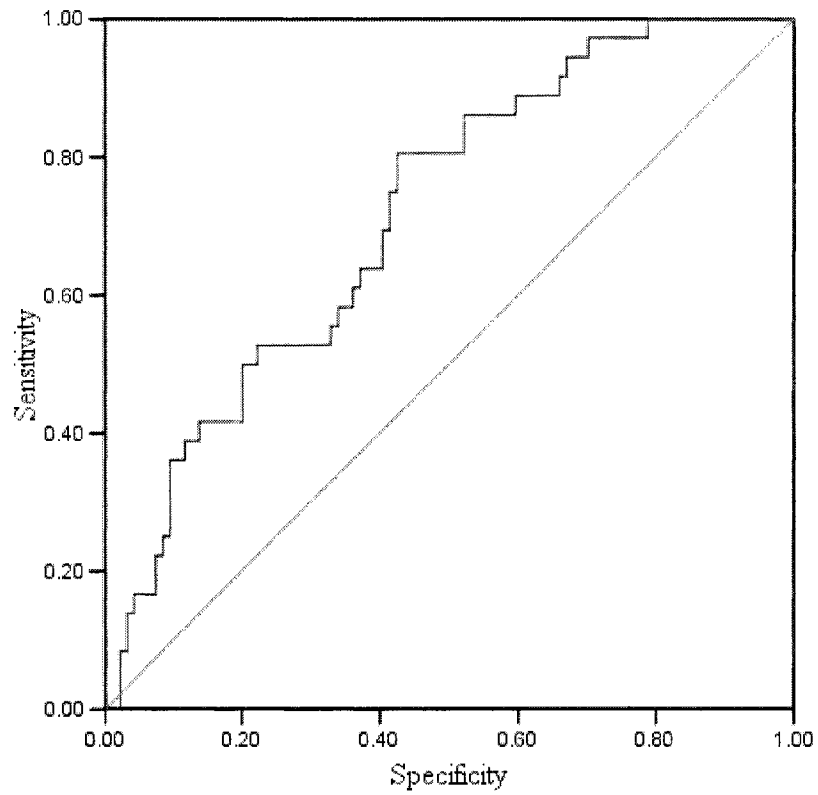


Figure 7. ROC for four factors (education, excessive use of force during index sex offense, criminal offense charges, and psychopathy) in predicting sexual recidivism in a group of extrafamilial child molesters.

Violent recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the violent recidivism model contained two variables: age at time of index offense and years of education. The forward stepwise regression analyses performed on variables of the index offense, variables of childhood historical factors, and measures of sexual deviance did not produce any significant factors. At the conclusion of the forward logistic regression analysis of the four variables of the criminal history, the violent recidivism model contained only one variable: prior criminal charges. At the conclusion of the forward logistic regression analysis of the two variables of the psychological measures, the violent recidivism model contained only one variable: measure of psychopathy

Table 21 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% Confidence Interval for the Odds Ratio for each of the independent variables.

Table 21

Stepwise Logistic Regression Results for Violent Recidivism: Extrafamilial Child Molester Group

Variable Set	B	Wald	Odds Ratio	95% CI
			Odds Ratio	
Demographic				
Age at time of assessment	-0.04	8.19*	0.96	0.93-0.99
Education	-0.16	12.09**	0.85	0.78-0.93
Offense history				
1 $\geq$ prior general offenses	1.26	14.88**	3.54	1.86-6.74
Psychological measures				
PCL-R	0.15	15.92**	1.16	1.08-1.25

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

A direct logistic regression analysis was performed on violent recidivism as outcome and the four independent variables: age at time of assessment, years of education, prior general offenses, and measure of psychopathy.

A test of the full model against a constant-only model was statistically reliable, $\chi^2(4, N=141) = 35.28$, $p < .001$, indicating that the predictors, as a set, reliably distinguished between those who recidivated and those who did not recidivate. The variance in recidivism accounted for was moderate with a Nagelkerke adjusted $R^2 = 0.30$, indicating that 30% of the variability in violent recidivism was predicted by these four factors.

Table 22 shows regression coefficients, Wald statistics, and odds ratios for each of the predictors. According to the Wald statistics (see Table 22), three factors contributed significantly to the prediction of violent recidivism: age at time of assessment, education, and degree of psychopathy. As can be seen by Table 22, for every one-year increase in age at time of assessment the odds of violent recidivism decreased by a multiple of 0.96 or by approximately 4%. For every year increase in education, the odds of a man in the child molester group recidivating decreased by a multiple of 0.88 or 12%. Lastly, one unit increase in scores on the measure of psychopathy increases the odds of violent recidivism by 7%.

Table 22

Direct Logistic Regression Results For Violent Recidivism: Extra-Familial Child Molester Group

Variable Set	B	Wald	Odds Ratio	95% CI Odds Ratio
Demographic				
Age at time of assessment	-0.04	5.20*	0.96	0.93-0.99
Education	-0.12	4.79*	0.88	0.79-0.99
Offense history				
1 _≥ prior general offenses	0.77	2.92	2.15	0.89-5.20
Psychological measures				
PCL-R	0.07	4.76**	1.07	1.01-1.13

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 8 provides a demonstration of the relationship between the independent variables (age at time of index offense, education, prior general offenses, and psychopathy) and the dependent measure of violent recidivism. The AUC of 0.78 was significantly greater than chance ($p < .001$), suggesting a fairly strong relationship between the independent variables and violent recidivism.

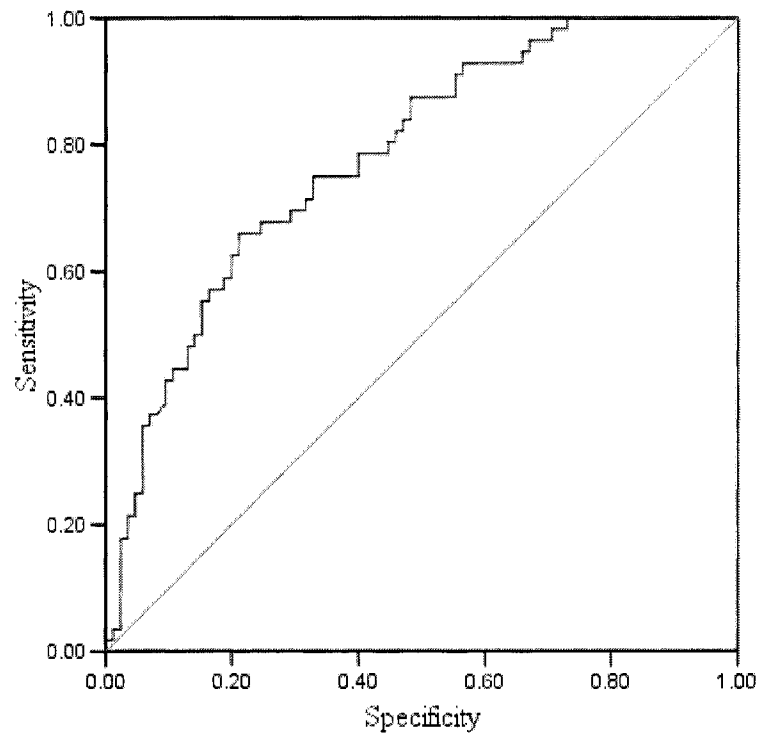


Figure 8. ROC for four factors (age at time of assessment, education, prior general offences, and psychopathy) in predicting violent recidivism in a group of extrafamilial child molesters.

General recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the general recidivism model contained two variables: age at time of index offense and years of education. The forward stepwise regression analyses performed on variables of the index offense and variables of childhood historical factors did not produce any significant factors. At the conclusion of the forward stepwise regression analysis of measures of sexual deviant arousal, the general recidivism model contained one variable: the pedophile assault index. At the conclusion of the forward logistic regression analyses of the four variables of the criminal history, the general recidivism model contained two variables: age at first offense and prior criminal charges. At the conclusion of the forward logistic regression analyses of the two variables of the psychological measures, the general recidivism model contained only one variable: measure of psychopathy.

Table 23 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% Confidence Interval for the odds Ratio for each of the independent variables.

Table 23

Stepwise Logistic Regression Results For General Recidivism: Extrafamilial Child Molester Group

Variable Set	B	Wald	Odds Ratio	95% CI
			Odds Ratio	
Demographic				
Age at time of assessment	-0.05	12.76**	0.95	0.93-0.98
Education	-0.16	13.04**	0.85	0.78-0.93
Sexual Deviance				
Pedophile Assault	0.66	6.70*	1.93	1.17-3.17
Index				
Offense history				
Age of first offense	-0.04	9.46*	0.96	0.94-0.98
1 _≥ prior general offenses	0.70	4.30*	2.00	1.04-3.87
Psychological measures				
PCL-R	0.11	12.15**	1.12	1.05-1.20

Note. *p<.05 , two-tailed. **p<.001, two-tailed.

A direct logistic regression analysis was performed on general recidivism as outcome and the six independent variables: age at time of assessment, years of education, pedophile assault index, age at first offense, prior general offenses, and measure of psychopathy.

A test of the full model against a constant-only model was statistically reliable, $\chi^2(6, N=135) = 45.28, p<.001$, indicating that the predictors, as a set, reliably

distinguished between those who recidivated with a criminal offense and those who did not recidivate. The variance in recidivism accounted for was moderate with a Nagelkerke adjusted $R^2 = 0.38$, indicating that 38% of the variability in general recidivism was predicted by these six factors.

Table 24 shows regression coefficients, Wald statistics, and odds ratios for each of the predictors. According to the Wald statistics (see Table 24), three factors contributed significantly to the prediction of violent recidivism: age at time of assessment, years of education, and criminal historical charges. As shown by Table 24, for every year increase in age the odds of a child molester recidivating decreased by a multiple of 0.94, or by 6%. For every year increase in education the odds of a child molester re-offending decreased by a multiple of 0.86, or by 14%. The odds of any new offense increased nearly three times when the offender had one or more criminal historical charges as opposed to no historical charges.

Table 24

*Direct Logistic Regression Results For General (Any) Recidivism: Extrafamilial
Child Molester Group*

Variable Set	B	Wald	Odds Ratio	95% CI
			Odds Ratio	
Demographic				
Age at time of assessment	-0.06	4.86*	0.94	0.89-0.99
Education	-0.16	6.93**	0.86	0.76-0.96
Sexual Deviance				
Pedophile Assault	0.53	2.70	1.70	0.90-3.18
Index				
Offense history				
Age of first offense	0.009	0.12	1.01	0.96-1.06
1≥ prior general offenses	1.18	5.23*	3.26	1.18-8.98
Psychological measures				
PCL-R	0.05	2.89	1.06	0.99-1.12

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 9 provides a demonstration of the relationship between the independent variables (age at time of index offense, education, age of first offense, prior general offenses, and measure of psychopathy) and the dependent measure of general recidivism. The AUC of 0.81 was significantly greater than chance ($p < .001$),

suggesting a fairly strong relationship between the independent variables and general recidivism.

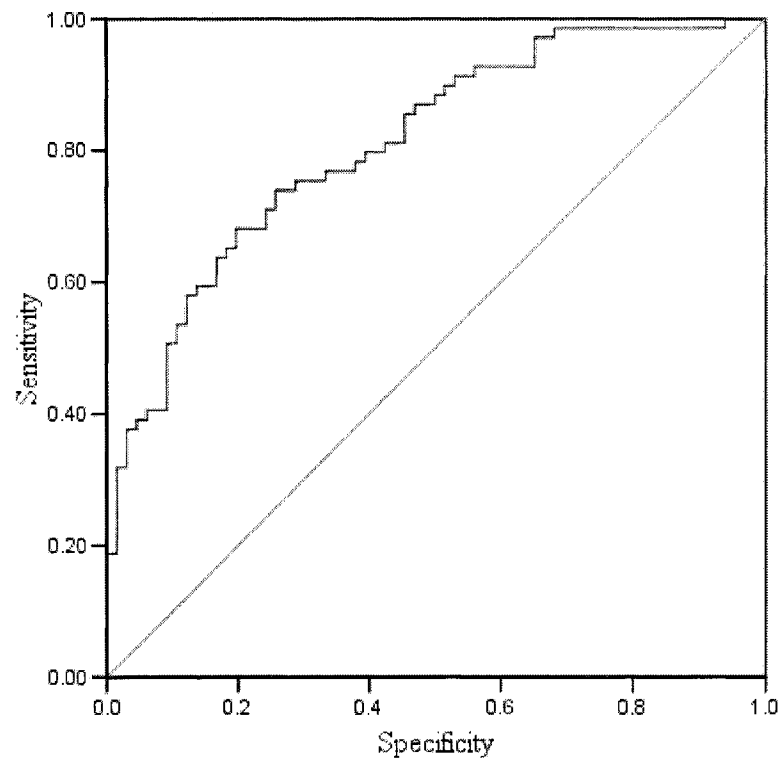


Figure 9. ROC of five factors (age at time of index offense, education, age of first offense, prior general offenses, and measure of psychopathy) and general recidivism in a group of extrafamilial child molesters.

In summary, sexual recidivism was reliably predicted by the combination of five factors: years of education, excessive force during index offense, pedophile assault indices, criminal historical offenses, and measure of psychopathy. None of the factors uniquely contributed to the prediction of sexual recidivism.

Violent recidivism was reliably predicted by the combination of four measures: age at time of index offense, years of education, prior general offenses, and measure of psychopathy. Of these four factors, three factors contributed to the prediction of violent recidivism: age at time of index offense, years of education, and measure of psychopathy. The odds of violent recidivism decreased with every year increase in age, decreased with every year increase in education, and increased with a unit increase in measures of psychopathy.

General recidivism was reliably predicted by the combination of six factors: age at time of index offense, years of education, pedophile assault index, age when first charged, prior criminal historical offenses, and measure of psychopathy. Of these six factors, three factors uniquely contributed to the prediction of general recidivism: age at time of index offense, years of education, and criminal historical charges. The odds of recidivism decreased with every year increase in age, decreased with every year increase in education, and increased for offenders with historical criminal charges.

Incest Offenders.

Sexual recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the sexual recidivism model contained only one variable: age at time of index offense. The forward stepwise regression analyses performed on variables of the index offense, variables of childhood historical factors, measures of sexual deviance, and variables of historical criminal factors did

not produce any significant factors. The forward logistic regression analysis of the two variables of the psychological measures resulted in the inclusion of both measures (i.e., measure of alcohol abuse, and measure of psychopathy) in the model.

Table 25 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% confidence interval of the Odds Ratio for each of the independent variables.

Table 25

Stepwise Logistic Regression Results For Sexual Recidivism: Incest Group

Variable Set	B	Wald	Odds Ratio	95% CI
				Odds Ratio
Offense history				
Age first offense	-0.05	8.62*	0.95	0.92-0.98
Psychological measures				
MAST	0.05	5.08*	1.05	1.01-1.09
PCL-R	0.10	3.98*	1.11	1.00-1.23

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

A direct logistic regression analysis was performed on sexual recidivism as outcome and the three independent variables: age at time of first offense, degree of alcohol abuse, and measure of psychopathy.

A test of the full model against a constant-only model was statistically reliable, $\chi^2(3, N=122) = 22.58, p < .001$, indicating that the predictors, as a set, reliably distinguished between those who recidivated with a sexual offense and those who did

not recidivate. The variance in recidivism accounted for was moderate with a Nagelkerke adjusted $R^2 = 0.37$, indicating that 37% of the variability in sexual recidivism was predicted by these three factors.

Table 26 shows regression coefficients, Wald statistics, and odds ratios for each of the predictors. According to the Wald statistics (see Table 26), only one factor contributed significantly to the prediction of sexual recidivism: age at time of first offense. For every year increase in age the odds of the incest offender recidivating with a sexual crime decreased by 0.89 times, or by 11%.

Table 26

Direct Logistic Regression Results For Sexual Recidivism: Incest Group

Variable Set	B	Wald	Odds Ratio	95% CI
				Odds Ratio
Offense history				
Age first offense	-0.11	5.54*	0.89	0.81-0.98
Psychological measures				
MAST	0.04	2.77	1.04	0.99-1.09
PCL-R	0.04	0.44	1.04	0.93-1.16

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 10 provides a demonstration of the relationship between the independent variables (age at assessment, degree of alcohol abuse, and measure of psychopathy) and the dependent measure of sexual recidivism. The AUC of 0.89 was

significantly greater than chance ($p < .001$), suggesting a strong relationship between the independent variables and sexual recidivism.

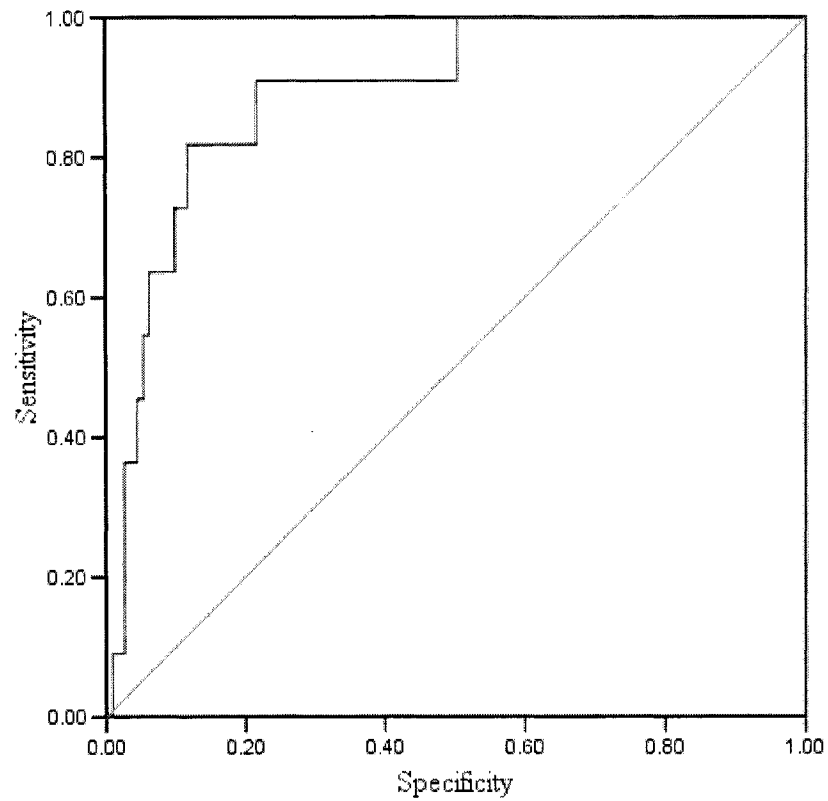


Figure 10. ROC of three factors (age at assessment, degree of alcohol abuse, and measure of psychopathy) in predicting sexual recidivism in a group of incest offenders.

Violent recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the violent recidivism model contained two variables: age at time of index offense and ever married at time of assessment. It is worth highlighting that, although the variable ever married achieved the criterion cut-off score to enter the model of violent recidivism, the variable did not uniquely predict violent recidivism. The forward stepwise regression analysis performed on variables of the index offense resulted in the inclusion of one variable: the offender having used alcohol or drugs prior to perpetrating offense. At the end of the analyses of the childhood historical factors, the violent recidivism model contained one variable: familial history of alcohol abuse. The forward stepwise regression analysis performed on measures of sexual deviance did not produce in any significant factors. At the end of the forward logistic regression analysis of the set of criminal historical variables, the violent recidivism model contained one variable: age at time of first historical offense. The forward logistic regression analysis of the psychological measures resulted in the inclusion of both variables, i.e., measure of alcohol abuse and measure of psychopathy, in the violent recidivism model.

Table 27 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% confidence interval for the odds ratio for each of the independent variables.

Table 27

Stepwise Logistic Regression Results For Violent Recidivism: Incest Group

Variable Set	B	Wald	Odds Ratio	95% CI Odds Ratio
Demographic				
Age at assessment	-0.06	10.39**	0.94	0.90-0.98
Ever married at time of assessment	-0.62	2.71	0.54	0.26-1.12
Childhood history				
Family history of alcohol abuse	0.78	5.46*	2.18	1.13-4.19
Index offense				
Influenced by drugs/alcohol	1.00	6.69**	2.74	1.28-5.88
Offense history				
Age first offense	-0.07	25.09**	0.93	0.90-0.96
Psychological measures				
MAST	0.06	11.13**	1.06	1.02-1.10
PCL-R	0.10	5.61*	1.10	1.02-1.19

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

A direct logistic regression analysis was performed on violent recidivism as outcome and six independent variables: age at time of assessment, family history of alcohol abuse, index offense was influenced by alcohol or drugs, age at time of first offense, degree of alcohol abuse, and measure of psychopathy. (The variable ever married was not entered into the full model because the variable did not reliably predict violent recidivism during the stepwise logistic regression analysis.).

A test of the full model against a constant-only model was statistically reliable, $\chi^2(6, N=103) = 39.01$, $p < .001$, indicating that the predictors, as a set, reliably distinguished between those incest offenders who recidivated with a violent crime and those who did not recidivate. Predictive accuracy as gauged by the Nagelkerke adjusted R^2 was equal to 0.56, suggesting that the variables collectively explained 56% of the variance in violent recidivism.

Table 28 provides a summary of the variables. According to the Wald statistic (see Table 28), only the variable age at time of assessment uniquely predicted violent recidivism, $\chi^2(1, N=112) = 6.25$, $p < .01$. The odds ratio of 0.87 indicated that for every year increase in age the odds of violent recidivism decreased by a multiple of 0.82, or by 18%.

Table 28

Direct Logistic Regression Results For Violent Recidivism: Incest Group

Variable Set	B	Wald	Odds Ratio	95% CI Odds Ratio
Demographic				
Age at assessment	-0.20	6.25*	0.82	0.70-0.96
Childhood history				
Family history of alcohol abuse	-0.76	0.62	0.47	0.07-3.11
Index offense				
Influenced by drugs/alcohol	0.65	0.42	1.92	0.26-14.04
Offense history				
Age first offense	0.01	0.04	1.01	0.89-1.16
Psychological measures				
MAST	0.07	3.06	1.07	0.99-1.15
PCL-R	0.10	1.66	1.10	0.95-1.28

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 11 provides a demonstration of the relationship between the independent variables (age at time of assessment, family history of alcohol abuse, index offense was influenced by alcohol or drugs, age at time of first offense, degree of alcohol abuse, and measure of psychopathy) and the dependent measure of violent recidivism. The AUC of 0.93 was significantly greater than chance ($p < .001$), suggesting a very strong relationship between the independent variables and violent recidivism.

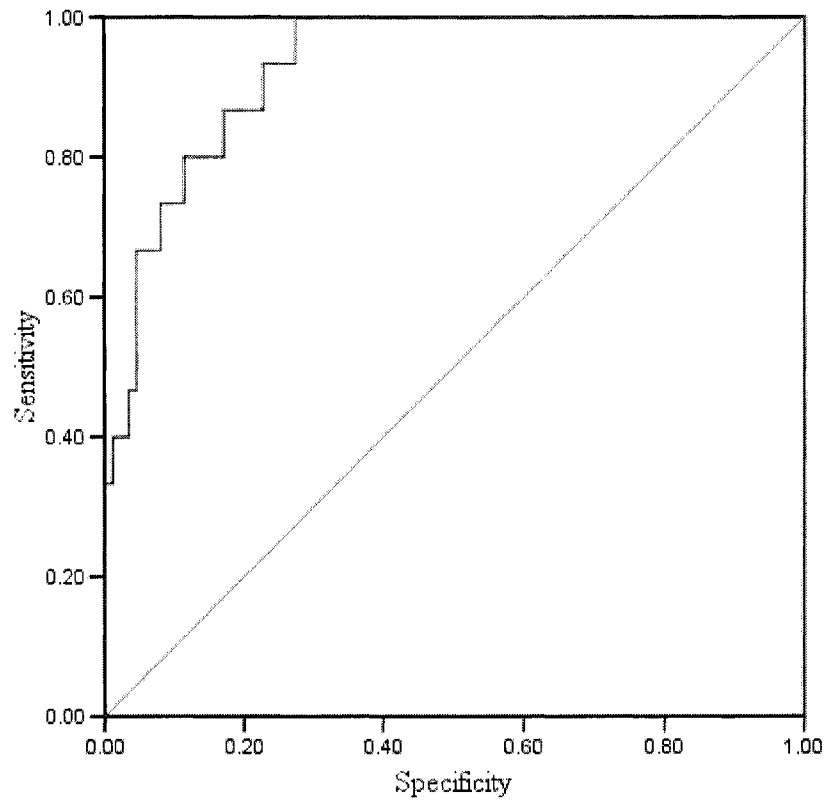


Figure 11. ROC of six factors (age at time of assessment, family history of alcohol abuse, index offense was influenced by alcohol or drugs, age at time of first offense, degree of alcohol abuse, and measure of psychopathy) in predicting violent recidivism in a group of incest offenders.

General(any) recidivism. At the conclusion of the forward stepwise regression analysis of the three demographic variables, the general recidivism model contained only one variable: age at time of index offense. The forward stepwise regression analysis performed on variables of the index offense resulted in the inclusion of one variable: the offender having used alcohol or drugs prior to perpetrating offense. At the end of the analysis of the childhood historical factors, the general recidivism model contained one variable: familial history of alcohol abuse. The forward stepwise regression analysis performed on measures of sexual deviance did not produce in any significant factors. At the end of the forward logistic regression analysis of the set of criminal historical variables, the general recidivism model contained one variable: age at time of first historical offense. The forward logistic regression analysis of the psychological measures resulted in the inclusion of both variables, i.e., measure of alcohol abuse and measure of psychopathy, in the general recidivism model.

Table 29 presents logit coefficients (B), the Wald statistic, the Odds Ratio, and the 95% confidence interval for the odds ratio for each of the independent variables.

Table 29

Stepwise Logistic Regression Results For General Recidivism: Incest Group

Variable Set	B	Wald	Odds Ratio	95% CI Odds Ratio
Demographic				
Age at assessment	-0.08	17.83**	0.92	0.89-0.96
Childhood history				
Family history of alcohol abuse	1.05	11.72**	2.85	1.56-5.19
Index offense				
Influenced by drugs/alcohol	1.08	9.03*	2.93	1.45-5.92
Offense history				
Age first offense	-0.08	34.26**	0.93	0.90-0.95
Psychological measures				
MAST	0.05	8.86*	1.05	1.01-1.08
PCL-R	0.11	8.86	1.11	1.04-1.19

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

A direct logistic regression analysis was performed on general recidivism as outcome and six independent variables: age at time of assessment, family history of alcohol abuse, index offense was influenced by alcohol or drugs, age at time of first offense, degree of alcohol abuse, and measure of psychopathy.

A test of the full model against a constant-only model was statistically reliable, $\chi^2(6, N=103) = 42.98$, $p < .001$, indicating that the predictors, as a set, reliably distinguished between those incest offenders who recidivated and those who did not recidivate. Predictive accuracy as gauged by the Nagelkerke adjusted R^2 was equal to 0.52, suggesting that the variables collectively explained 52% of the variance in violent recidivism.

Table 30 provides a summary of the variables. According to the Wald statistic (see Table 30), two variables reliably predicted general recidivism: age at time of assessment and measure of psychopathy. As shown by Table 30, for every year increase in age the odds of a man in the incest offender group recidivating decreased by a multiple of 0.84, or by 16%. For every unit increase in scores on the measure of psychopathy the odds of a man in the incest offender group re-offending increased by a multiple of 1.12, or by 12%.

Table 30

Direct Logistic Regression Results For General Recidivism: Incest Group

Variable Set	B	Wald	Odds Ratio	95% CI Odds Ratio
Demographic				
Age at assessment	-0.17	8.86*	0.84	0.75-0.94
Childhood history				
Family history of alcohol abuse	-0.22	0.10	0.80	0.21-3.10
Index offense				
Influenced by drugs/alcohol	0.70	0.79	2.02	0.43-9.55
Offense history				
Age first offense	0.02	0.22	1.02	0.93-1.12
Psychological measures				
MAST	0.04	1.94	1.04	0.98-1.11
PCL-R	0.12	4.24*	1.12	1.01-1.25

Note. * $p < .05$, two-tailed. ** $p < .001$, two-tailed.

Figure 12 provides a demonstration of the relationship between the independent variables (age at time of assessment, family history of alcohol abuse, index offense was influenced by alcohol or drugs, age at time of first offense, degree of alcohol abuse, and measure of psychopathy) and the dependent measure of general recidivism. The AUC of 0.89 was significantly greater than chance ($p < .001$), demonstrating a strong relationship between the independent variables and general recidivism.

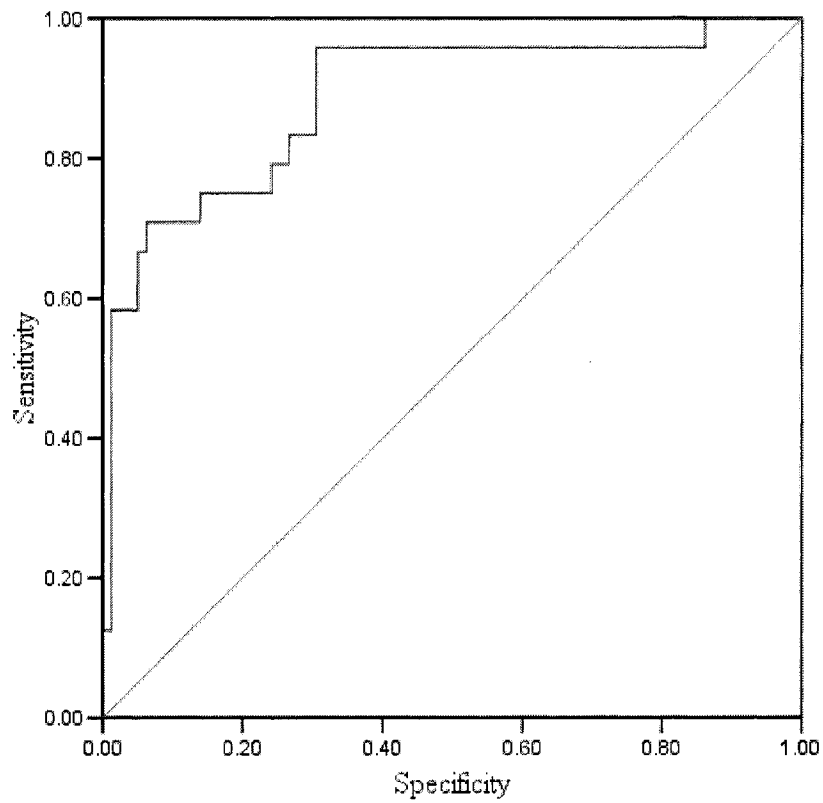


Figure 12. ROC of six factors (age at time of assessment, family history of alcohol abuse, index offense was influenced by alcohol or drugs, age at time of first offense, degree of alcohol abuse, and measure of psychopathy) in predicting general recidivism in a group of incest offenders.

In summary, sexual recidivism among incest offenders was significantly predicted by the combination of three factors: age of the offender at his first offense, index of alcohol abuse, and degree of psychopathy. Of these variables, only the age of the offender at his first offense predicted sexual recidivism over and above that of the remaining factors. For every year increase in age the odds of the offender recidivating decreased.

Violent recidivism was reliably predicted by the combination of six measures: age at time of index offense, family history of alcohol abuse, offence influenced by drugs or alcohol use, age at first offense, index of alcohol abuse, and degree of psychopathy. Of these six factors, only one factors uniquely contributed to the prediction of violent recidivism: age at time of assessment. The odds of violent recidivism decreased with every year increase in age.

Similar to violent recidivism, general recidivism was significantly predicted by combination of age at time of index offense, family history of alcohol abuse, offence influenced by drugs or alcohol use, age at first offense, index of alcohol abuse, and degree of psychopathy. Of these six factors, age at the time of assessment and the degree of psychopathy were uniquely related to general recidivism among incest offenders. More specifically, the odds of general recidivism decreased with every year increase in age, and increased with every unit increase in scores on the measure of psychopathy.

Table 31 provides a descriptive overview of sets of variables that predicted recidivism within each group of sex offenders as a function of criminal offense category. Two features are worth highlighting. First, the combination of factors

predicting recidivism was distinct for each sex offender group. Second, scores on the PCL-R predicted violent recidivism in all sex offender groups.

Table 31

Prediction of Recidivism as a Function of Sex Offender Group and Criminal Offense

Category

Variable	Rapist			Extra-Familial Child Molester			Incest		
	S	V	A	S	V	A	S	V	A
Demographic									
Age at assessment			✓		✓	✓		✓	✓
Education (yrs.)				✓	✓	✓			
Ever married at time of assessment	✓	✓							
Childhood history									
Family mental illness		✓							
Family history of alcohol abuse								✓	✓
Family history of criminality									
Index Offense									
Male child victims									
Female child victims									
Influenced by drugs/alcohol							✓	✓	✓
Degree of sexual assault:									
Attempt or touching									
Serious assault (penetration)									
Assault with excessive violence				✓					
Sexual Deviance									
Rape index									
Rape index ≥ 1									
Assault index									
Assault index ≥ 1									
Pedophile index									
Pedophile index ≥ 1									
Pedophile assault index				✓		✓			
Pedophile assault index ≥ 1									
Offense History									
Age first offense						✓	✓	✓	✓
1 $\geq$ prior sexual offense									
1 $\geq$ prior violent offense									
1 $\geq$ prior offenses	✓	✓	✓	✓	✓	✓			
Psychological Measures									
MAST							✓	✓	✓
MAST >7									
PCL-R		✓		✓	✓	✓	✓	✓	✓
PCL-R >25									

Note. S=sexual, V=violent, and A=any offenses.

CHAPTER 5: DISCUSSION

This study had three aims. The first aim was to assess the proportion of recidivists among 86 rapists, 206 child molesters, and 295 incest offenders. The criminal activity of these offenders was tracked retrospectively over a period of 20 years. The average follow-up time of the rapist, incest, and child molester groups was 11.95 years ($SD = 4.02$), 12.09 years ($SD = 3.69$), and 11.47 years ($SD = 3.61$), respectively. A major virtue of this study was that estimates of recidivism were calculated based on all new sex offenses, violent offences, or general offences, irrespective of when they occurred during the offender's follow-up period. Another asset of the current study was that data was based on subjects recruited during the process of adjudication. Thus, this study was able to capture a broad spectrum of sexual offenders with variable criminal histories and whose sexual crimes ranged in severity.

The second aim was to examine methodological sources of variability in estimates of recidivism and to explore the effect of these sources on the phenomena of interest. The third aim was to investigate the relationship between recidivism and personal characteristics, criminal history, psychological, and physiological factors in the various groups of sex offenders.

The discussion is organized into two parts: 1) addressing the study objectives, as prescribed by the hypotheses; and 2) limitations of the study and future directions.

Objectives

Hypothesis one: the percentage of recidivism varies as a function of the sex offender group and the type of criminal charge

In the present investigation, recidivism was defined as any charge or conviction for a new sexual offense, a new violent (i.e., sexual and/or violent)

offence, or any new offense. Based on these definitions, the percentage of men in the rapist group committing a new sex crime, violent crime, or any crime was 24.4, 37.2, and 54.6, respectively. The percentage of men in the child molester group perpetrating a new sex crime, violent crime or any offence was 22.8, 34.0, and 46.1, respectively. The percentage of men in the incest group who committed a new sex, violent, or any offence was 9.8, 20.0, and 27.5, respectively.

This investigation's findings confirmed previous research that a higher frequency of rapists and child molesters will commit a new sex offence (Motiuk & Brown, 1996) and corroborates previous investigations that incest offenders as a group present the lowest risk to re-offend (Studer, Clelland, Aylwin, Reddon, & Monro, 2000). However the findings of the present study also refuted previous data, which demonstrated that the frequency of rapists committing a new sexual offence was significantly higher than that of child molesters (Hanson & Bussière, 1998; Prentky et al., 1997). The analyses in this investigation indicated that the proportion of sexual recidivists in rapist and child molesters groups were not statistically different. Similar findings between the rapist and child molester groups were noted when examining other types of recidivism.

Central to the discussion of this investigation's findings is its methodology. That is, the findings must be interpreted within the context of methodological factors such as definitions of recidivism, follow-up period, method of measurement, and study sample. These factors have been previously shown to influence estimates of recidivism (e.g., Greenberg, 1998; Prentky et al., 1997) and merit discussion.

The first of these factors is the type of criminal charge evaluated at outcome. As previously highlighted, recidivism in the present study was examined as a function of new charges for a sexual, violent (this category included sexual offences), or any

offense. The rationale was to illustrate that base rate estimates of recidivism will depend on the outcome measure employed. It is also worth noting that the current study utilized the proportion of offenders incurring new charges rather than new convictions. Research has shown that estimates of recidivism based on reconviction rates tend to grossly underestimate actual rates of recidivism, especially sexual recidivism (Friendship & Thornton, 2001). Plea bargaining often results in many sexual charges being brought down to a violent offence, a property crime, or not processed at all.

The second methodological factor is the subjects selected for inclusion in the present study. As noted earlier, the present investigation included subjects who had been remanded to custody for a pretrial assessment or for an assessment related to sentencing. These subjects, as such, may be more representative of the diversity in the population of sex offenders in that they reflect an array of criminal histories and criminal offending. Previous investigations have involved subjects incarcerated in maximum-security institutions (e.g., Quinsey et al., 1995; Rice et al., 1990) and/or receiving treatment at psychiatric correctional institutions (e.g., Prentky et al., 1997). For example, Rice and colleagues (1990) examination of sexual recidivism among rapists released from a maximum security facility noted that the frequency of new sexual convictions was 28 percent. It is noteworthy that statistics were based on new convictions which tend to underestimate recidivism. Extrapolating from their data, the proportion of rapists with new charges would most likely be much greater than noted in the present investigation (24% for rapists). Discrepancy in sample selections most likely explain the difference in findings; that is, Rice et al. (1990) recruited subjects from a maximum security facility and, as such, they may represent a portion

of the sex offender population who are more antisocial, more deviant, and who have an extended criminal history than the typical sex offender.

The third methodological factors that warrants discussion is the 20-year follow-up period for some subjects of this study. (Average follow-up time of the men in the rapist, child molester, and incest groups were 11.95 years, 12.09 years, and 11.47 years, respectively). The present study provided the unique opportunity to examine recidivism over an extended time period. Most current knowledge regarding estimates of recidivism has been formulated from studies examining re-offenses over periods of five years or less. Hanson & Bussière (1998) meta-analysis provides an excellent example of this practice. The average follow-up time among the 61 studies included in the meta-analysis was four to five years. It is interesting to note that in their review the proportion of offenders committing a new sex offense was 18.9% for rapists and 12.7% for child molesters. Rates which are considerably lower than those in the current investigation. In the current study, the percentage of sexual recidivists in the child molester group and the rapist group were 24.4 and 22.8, respectively. By using a relatively long follow-up period in the current investigation, the study subjects had more opportunity to offend and to be captured in the data as recidivists.

The fourth methodological consideration is the calculation of recidivism as a function of any new offense rather than the first offense post-release. Examining recidivism beyond the nature of the first offense enables for more men to be captured as sexual and violent recidivists, and, perhaps provides a more accurate estimation of recidivism among the various types of sex offenders. To illustrate, an examination of data in the current study reveals that approximately 16% of men in the rapist group are identified as sexual recidivists when recidivism is measured as the first offence post-release. In comparison, 24% of men in the rapist group are classified as sexual

recidivists when recidivism is measured as the first sexual offence at any point during the follow-up period. If the two types of methods of assessment are compared then there is a relative 50 percent increase in the percentage of recidivists. Similar trends are noted for child molesters and incest offenders, with the proportion of sexual recidivist of child molesters and incest offenders increasing 30 percent and 31 percent, respectively. This data, in combination with previously listed factors, enforces the notion that careful consideration must be given to the method employed when examining recidivism among sex offenders.

While variability in methodology between studies has resulted in discrepancies in estimates of recidivism, the finding in the present study do provide an indication of the base-rate for recidivism within the population of sex offenders, and argues that rapists and extra-familial child molesters have considerably higher likelihood of recidivating than incest offenders.

Hypothesis two: Percentage of recidivism of each offender type will vary as a function of the length of the follow-up period.

Consistent with previous research and conventional wisdom, most rapists re-offend with a sexual offence within the first years after release (McCoy, 1997; Prentky et al., 1997). In the present study, a quick decay was observed with 75% of rapists' recidivating with a sexual offence three years post-release. In fact, the average time among rapists to commit a new sex crime was approximately two and half years. Rapists also demonstrated the quickest rate of violent recidivism. Taken together, these findings suggest that longer follow-up periods will not necessarily improve estimates of recidivism among the typical rapist.

The current findings also support previous research of rates of sexual recidivism of extra-familial child molesters (Hanson et al., 1993; Harris & Hanson,

2004; Prenkty et al., 1997): Men in the extra-familial child molester group took the longest period of time to re-offend sexually, displaying a relatively slow and constant rate of sexual recidivism. Moreover, the study highlighted the importance of follow-up periods exceeding five years when examining recidivism among child molesters (Soothill & Gibbens, 1978). While the majority of extra-familial child molesters in this study recidivated with a sexual offence within the first five years (the average time to re-offend was 4.92 years), they appeared to remain at risk to re-offend 10 to 15 years following release. In fact, it was demonstrated in this study that approximately 14% of new sexual recidivism cases occur more than 10 years after release. It is quite apparent that isolating a single at risk period for sexual recidivism of child molesters, as a group, is difficult because they remain at risk to re-offend for extended periods of time.

It is equally important to note a slow decay was observed among incest offenders. It took approximately 13 years for all the incest offenders to recidivate with a sexual offence, with an average time period of four years. These findings suggest that, although incest offenders may have the lowest base-rate for re-offending, they still require considerable attention and supervision during their release.

The results also confirm that extra-familial child molesters and incest offenders have the potential to re-offend not only sexually but also violently throughout their lives. The implications of these findings are that child molesters require long periods of supervision, and corroborate the views of other researchers that strategies are needed to monitor the long-term risk of child molesters (Hanson et al., 1993).

There is little information in the literature attempting to explain differences in rates between rapist and child molesters. One hypothesis is that child molesters may

have deviant sexual arousal that may be lifelong, which may account for the similar base rates between rapists and child molesters. Another possible explanation is that the age of the offender impacts upon subsequent criminal offending, especially sexual offending. The association between age and recidivism has been well-established in the research of sex offenders (e.g., Hanson, 2002; Prentky & Knight, 1993, Rice et al., 1990). However, a recent study has found that age impacts on recidivism differentially between groups of sex offenders.

Hanson (2002) examined the relationship of age to sexual recidivism in a sample of 4,673 sex offenders and discovered that the extra-familial child molesters were at significantly higher risk for sexual recidivism than were the rapists when age was controlled. More specifically, the recidivism risk of rapists steadily decreased with age, a finding that is consistent with the literature of recidivism and sex offenders (Hanson & Bussière, 1998; Rice et al., 1990). Extra familial child molesters, however, displayed relatively little reduction in recidivism risk until after age 50.

Hanson (2002) posits that the age-recidivism findings of extra-familial child molesters can be explained by the competing factors of increased self-control and increased opportunities to offend as the offender ages. That is, the child molesting offenders will have increasing self-control while at the same time be presented with more opportunities to offend in their late 20s and early 40s because they are more likely to be associated with friends and families who have children. Rapists, in contrast, will be experiencing increasing levels of self-control as well as fewer opportunities to offend. Most rape victims are young women associated to the victim. As they age, there will be fewer opportunities (e.g., parties, bars, campuses) to meet these women.

Hypothesis three: Recidivists within each group of sex offenders will be significantly different than non-recidivists with respect to personal characteristics, criminal history, psychological, and physiological factors.

The ability to discriminate rapists who committed a new offence from their non-recidivist counterparts was relatively poor, irrespective of the type of criminal offence. This finding was consistent with previous research (Proulx et al., 1997; Rice et al., 1990). In the present investigation, the rapist recidivists were more likely than non-recidivists to never be married and to have a history of criminal offending. In addition, violent recidivists had a higher likelihood to have a history of mental illness in their family-of-origin, and those who recommitted any new crime were more likely to have initiated their criminal careers at a younger age.

The study also confirmed several factors that have been previously identified as being important discriminators between recidivists and non-recidivists among child molesters: years of education (Hanson & Bussière, 1998), a history of violent and criminal offending (Hall & Proctor, 1987; Rice et al., 1991), deviant sexual preference (Malcolm, Andrews, & Quinsey, 1993; Proulx et al., 1997; Rice et al., 1991); and psychopathy (e.g., Firestone et al., 2000; Hanson & Harris, 2000). In this study, offenders who recidivated (sexually, violently, or generally) had low levels of education, had a history of violent and criminal offending, displayed deviant arousal to child assault stimuli, and shared psychopathic characteristics.

A somewhat surprising finding was child molesters who re-offended with any kind of offence, in comparison to those who did not re-offend, tended to display a sexual preference for adult rape scenarios as well as child assault scenarios. Marshall and Barbaree (1989) noted that this profile tends to be rare. In their research they

found a dual preference of adult-child in a sub-group of child molesters only. Interestingly, these child molesters had been assessed as outpatients and were living in the community. Previous research has generally found that child molesters demonstrate a distinct sexual preference for prepubescent children (Malcolm et al., 1993; Wormith, 1986), and those who recidivate tend to sexually prefer children (Malcolm et al., 1993). Overall, the relationship between deviant arousal and any type of offense is unclear. However, the findings in this study may support the notion that many sexual offenses have been plea bargained to non-sex related offenses (e.g., break and enter), accounting for the heterogeneity in sexual stimuli preferences.

Inconsistent with previous research (Hanson & Harris, 2001) was the inability for background childhood events or the seriousness of the index offences (as reflected by the level of violence) to discriminate extra-familial child molester recidivists from non-recidivists. This inconsistency between previous research and the current study may reflect sample characteristics; that is, in previous research the offenders were drawn from correctional institutions and may have been more disturbed than the present sample. Alcohol use also failed to discriminate sexual, violent, and general recidivists from non-recidivist counterparts in the present sample of child molesters, albeit a finding consistent with Prentky et al. (1997).

Several variables proved to be reliable discriminators between incest offenders who recidivated and those that did not. In accord with previous research, recidivists were younger than non-recidivists (Firestone et al., 1999). Moreover, recidivists were more likely to be under the influence of a substance either prior to or during the commission of the offence. Age of first charge or conviction for any offense also proved to be a reliable discriminator between recidivists and non-recidivists. It appears that, although incest offenders as a group may commit a relatively few

offences prior to their index offence, recidivists began their criminal career at an earlier age than their non-recidivist counterparts. This finding is in line with prior research. Namely, age of onset of criminal behavior begets future criminality (Prentky & Knight, 1993). Also echoing previous research (Firestone et al., 1999; Quinsey et al., 1995), psychopathy discriminated recidivists from non-recidivists as reflected by the PCL-R.

Several factors were noted to be unique to violent and general re-offending among incest offenders. These recidivists were more likely to have a history of violent and criminal offences, and the alcohol screening measure was successful in discriminating those who recidivated and those that did not.

In addition, violent and general recidivists were more likely to have had more chaotic family backgrounds-as evidenced by the higher proportion of family alcoholism. Moreover, violent recidivists were demonstrated to have a higher proportion of family mental illness than non-recidivists. Early childhood experiences among adult child molesters, particularly incest offenders, have not been widely investigated, and thus, it cannot be commented on the manner and direction to which these factors impact upon the offending behavior of this population. However, it can be postulated that poor early attachments and early childhood experiences would impact on adult attachment patterns, social schemas, and general worldview. In fact, Marshall and Barbaree (1990) propose in their model of sexual offending that negative family environments facilitate later aggression. Early exposure to poor socialization, particularly violent home environments, promotes the development of poor social skills and a limited ability to develop and maintain intimate bonds. In addition, these negative home environments provide a behavioral template for the child.

Empirical evidence from the adolescent sex offender population provides some support for Marshall and Barbaree's (1990) model. The demographic and parental characteristics of the adolescent sex offender population has been widely discussed and studied, with much of the literature commenting on the poor attachment quality, negative family history, and abuse history of this population (e.g., Gal & Hoge, 1999; Graves, Openshaw, Ascione, & Erickson, 1996; Kenny, Keogh, & Seidler, 2001). For instance, a meta-analysis by Graves and colleagues (1996) was demonstrated that adolescent sexual assaulters overwhelmingly came from homes in which fathers abused alcohol and had rigid parenting styles (i.e., many rules and expectations of perfection).

Given that most of adult incest recidivists have a prior history of violent offending (which consists of both sexual and violent crimes), it can be postulated that they may have been subjugated to dysfunctional home lives, involving parental substance abuse, parental criminality, and violence. Nevertheless, the link between early childhood experiences and recidivism in this sub-group of sex offenders remains unclear due to the limited research in the area. Firestone and colleagues (1999) examined early childhood experiences in this population and its association to recidivism. They found that incest offenders who had any kind of recidivism when compared to non-recidivists were more likely to have a family history of alcoholism, family history of violence, and family history of criminality. In addition, these recidivists were more likely to have been abused physically and to have been placed outside the home prior to 16 years of age. In accordance to Beech, Thornton, and Fisher's (2003) commentary of risk assessments, this research suggests and further supports that risk assessments need to be broad and take under consideration a wide

range of factors, including but not limited to dispositional, contextual antecedents, clinical, and historical factors, such as early childhood environments.

An interesting, and somewhat surprising, finding was that a higher proportion of the recidivists than non-recidivists in the incest group were not married at the time of their index offence. On further reflection, the definition of incest in this study may account for this finding. The term incest was defined liberally, and, as such, men in the incest group included surrogate grandfathers, uncles, cousins, as well as biological fathers and grandfathers. Subsidiary results indicate that a higher proportion of recidivists were relatives of their victims rather than their fathers (34.6% vs. 28.8%, respectively). Current literature examining victim relationships of incest offenders and recidivism indicate that offenders who are biological fathers recidivate sexually and criminally at a lower rate than offenders who are not biological parents to their victims (Greenberg, Bradford, Firestone, & Curry, 2000). Conceivably, the hierarchical nature of the criminal offence categories in this study captured additional sexual recidivists in the violent offence category.

Phallometric measures failed to discriminate between recidivists and non-recidivists in the incest group. Both recidivists and non-recidivists demonstrated a sexual preference for children, irrespective of the nature of their new offence. Of relevance, this finding was consistent with the phallometric measures of the child molester group in this study. That is, recidivists in the child molester group tended to be differentiated from non-recidivists by their preference to child *assault* stimuli and not their sexual preference to children. It could not be ascertained as to whether the child assault stimuli would have also discriminated between recidivists and non-recidivists in the incest group because this data was absent.

Published research examining deviant activity preference (e.g., violence) and recidivism among child molesters is limited. However, empirical findings clearly demonstrate that child molesters respond preferentially to child suffering scenarios when compared to non-offenders (Chaplin et al., 1995), and there is indirect evidence that the combination of level of force and sexual deviancy correlate to the probability of subsequent re-offending among extra-familial child molesters (Barbaree & Marshall, 1988). Thus, it is possible that it is the deviant arousal to sadistic and violent acts which discriminates between those child molesters (i.e., extra-familial and incest offenders) who recidivate and those that do not.

It is also worthy of attention that the number of prior sexual offenses failed to discriminate between recidivists and non-recidivists irrespective of the type of sex offender or the criminal offence history under study. There appears to be some discrepancy in the literature as to the ability for this variable to discriminate between recidivists and non-recidivists. Hanson et al (1993) and Quinsey et al. (1995) both found that it distinguished recidivist from non-recidivists, but Hanson and Harris (2000) did not. The relatively low incidence of prior sex offences among offenders in this investigation may partially account for the findings in this investigation. The percentage of rapists, child molesters, and incest offenders who had a history of sexual charges and convictions was 18.6, 32.5, and 17.3, respectively. Hanson et al (1993) reported that 35 percent of their sex offenders had a history of sexual convictions. Unfortunately, they do not provide statistics as to the percentage of prior charges. Given that convictions underestimate the proportion of recidivists (Friendship & Thornton, 2001), it can be assumed that their statistic is much greater.

The implications of the current findings are in its illustration that rapists and child molesters are distinct groups and that neither of these groups is homogeneous

(Quinsey et al., 1995; Hanson & Bussière, 1998). This in turn has ramifications for the development of treatment and supervisory programs; namely, a one program fits all approach cannot be taken with sex offenders. Nonetheless, it is worthy of attention that all sex offenders who are prone to recidivate share at least one common factor: a criminal history. More specifically, age at which first offended and prior offences of any kind were particularly good factors at characterizing those that recidivated and those that did not.

Hypothesis four and five: Prediction of sexual recidivism and violent recidivism within each category of sex offenders

In this study, unique sets of factors predicted recidivism of the different types of sex offenders. Sexual recidivism among rapists was best predicted by the fact that they had never been married at time of assessment and the presence of historical charges. Violent recidivism was best predicted by the rapist's marital status, childhood history, historical criminal charges, and psychopathy. The offender's age at assessment and the presence of prior criminal charges reliably predicted recidivism of any kind in this sample of sex offenders.

Among child molesters, sexual recidivism was best predicted by the combination of the number of years of education, high level of force during the initial offence, arousal to deviant and violent activities with children, historical offences, and psychopathy. Violent recidivism was reliably predicted by the age of the offender at the time of assessment, years of education, historical offences, and psychopathy. General recidivism was moderately well predicted by the age at time of assessment, years of education, deviant sexual interest of violent activity with children, criminal historical factors, and psychopathy.

Among incest offenders, sexual recidivism was very well predicted by the combination of the offender's age at time of assessment, an index of his alcohol use during his index offence, and the degree of psychopathy. Violent recidivism was best predicted by the combination of the offender's age at time of assessment, family history of alcoholism, alcohol use at time of index offence, age when criminal history began, general alcohol use, and psychopathy. General recidivism was predicted by the same combination of factors as violent recidivism.

While most of the variables under investigation in this study are classified as static risk factors and are not amenable to intervention, the findings confirm research indicating that they are useful in evaluating the long-term recidivism potential of sex offenders and may be the best predictors of recidivism (Hanson et al., 2003; Hanson & Bussière, 1998). Moreover, most of the risk factors identified in this study were similar to those noted in a recent meta-analysis of sex offender recidivism studies (Hanson & Bussière, 1998). In a quantitative analysis of 61 recidivism investigations of rapists and child molesters, Hanson & Bussière (1998) noted that sexual recidivism was best predicted by measures of sexual deviancy (e.g., deviant sexual preferences, prior sexual offences), and to a moderate extent by general criminological factors (e.g., age, marital status, prior offences). General recidivism was best predicted by criminological factors (e.g., young age, unmarried, prior criminal history), psychopathy or antisocial personality disorder, sexual criminal history (e.g., use of force during sexual crime), and psychological maladjustment (e.g., alcohol abuse during the offense or generally). The same factors that predicted general recidivism predicted nonsexual violent recidivism.

The present study also provided evidence that, although similar risk factors are salient for different types of sex offenders (e.g. prior criminal history, age), it was the

combination of these factors that was distinctive of recidivism for rapists, extra-familial child molesters, and incest offenders. In general, combination of risk factors predicts recidivism better than any individual risk factor alone (Hanson & Bussière, 1998). In addition, this investigation further strengthened a position by Hanson and Bussière (1998): Assessments of risk should consider predictors of sexual recidivism and general recidivism separately. Regardless of the offender category, risk factors of sexual recidivism were distinct from those of either violent or general recidivism.

Data in this investigation also bear further credence that the ability of phallometry to predict recidivism is affected by the type of outcome measure (e.g., sexual recidivism) and the type of sexual offender (Hanson & Bussière, 1998; Proulx et al., 1997). In this study, sexual deviance was not predictive of recidivism among rapists or incest offenders; a finding noted by other researchers (e.g., Proulx et al., 1997). In contrast, arousal to assault stimuli with children was a predictor of general recidivism among extra-familial child molesters only. Published commentaries regarding phallometric assessments suggest that some of the variability in the capacity of sexual deviant patterns to predict recidivism may, in part, relate to the stimuli content involved in assessments (Bladder & Marshall, 1989; Harris et al., 1992). For example, it is purported that the laboratory coercive sexual scenarios used in phallometric assessments lack the sensitivity to differentiate rapists from non-rapists (Bladder & Marshall, 1989). Furthermore, there is evidence to suggest that more coercive and aggressive stimuli yield better discriminative and predictive ability of recidivism in rapists (Bladder & Marshall, 1989; Harris et al., 1992; Lalumière & Quinsey, 1993) and child molester groups (Harris et al., 1992), which may explain the ability of the child assault stimuli to predict recidivism among child molesters in this study. The study's findings, in combination with previous research, would imply that

phallometric measures might be most useful in identifying sexual offenders with sadistic sexual preferences and flagging them to be at risk to re-offend generally.

One of the most notable and robust findings of the present study was the ability of the PCL-R to predict recidivism as a sole predictor in groups of child molesters. This finding was congruent with current literature, demonstrating that sex offenders with many psychopathic characteristics, as assessed by the PCL-R, are at an increased risk to re-offend, sexually (Quinsey et al., 1995); violently (Hemphill & Hare, 2004; Quinsey et al., 1995) and generally (Salekin et al., 1996; Serin et al., 2001). While this study confirmed previous findings, it also highlights the heterogeneity of sex offenders and the relevance of sex offender typology when examining risk factors. In the current study, extra-familial and incest child molesters who displayed more psychopathic characteristics, as reflected by high PCL-R scores, were at risk to re-offend, sexually, violently, and generally. In contrast, the same measure could not predict recidivism in rapists. Quinsey et al. (1995) proffer that the PCL-R may fail to predict those rapists who will recidivate because the construct rapist and the construct psychopath are essentially the same variable, whereas child molester and psychopath represent two distinct constructs. In general, the findings of the present study, coupled with previous research, highlight that the PCL-R may be one of the most effective tools in predicting groups of sex offenders who are at high risk to re-offend on release.

Limitations and Future Directions

This research project was aimed at examining recidivism, and in the process, highlighting some of the methodological factors that affect the researcher's/clinician's understanding of recidivism. In the course of the project, several factors were brought into focus which revealed limitations associated with research of sex

offenders. This section is divided into two parts. The first part discusses limitations of the research, whereas the second section provides suggestions for future directions.

Limitations

The present investigation is limited by the fact that only offences reported to police were included in the study. As a consequence, the estimates of recidivism most likely underestimate the true rate of offending. However, the extent to which the undetected offenses impact upon the observed recidivism rates is a matter of debate. Hanson and colleagues (2003) explain that if the typical sexual offender commits many offenses, then the observed rates should be close to the actual rates. On the other hand, if the typical sexual offender commits only a handful of offences (i.e., less than five) then the observed recidivism rates would be expected to underestimate the actual rates. Needless to say, specifying the amount of underestimation is challenging given that the phenomenon of interest is, by definition, unobservable (Hanson et al., 2003). Although it is difficult to develop a firm grasp as to the actual rate of recidivism, the findings in the current study highlight that recidivism rates of sex offenders tends to be quite low and that differences exist between groups with respect to types of recidivism. Perhaps it is this difference between groups that may be most valuable in highlighting in subsequent studies. Rather than pursuing the overarching question of “what is the rate of recidivism”, researchers may be more apt to examine the specificity of recidivism and pose “which type of sex offender is most likely to commit which type of crime and to whom”.

Another limitation of the current study was that calculation of rates of recidivism with survival analysis were based on the first offence post release rather than a new re-offence occurring at any point during the follow-up period. It is estimated that more than half of sex offenders will be released into the community on

day parole (one-third of the sentence), full parole or statutory release (two-third of the sentence) prior to the end of their sentence (Motiuk & Belcourt, 1996). In order to calculate time at risk to re-offend during the 19 year follow-up period, information detailing the exact amount of time served for each sentence and the amount of time living in the community was needed. This information, however, was often not provided on CPIC reports and had to be estimated. Calculations of time surviving in the community were further complicated by those offenders who violated their conditions of parole. It could not always be confirmed from CPIC reports whether these offenders were re-institutionalized, and if so, the amount of time spent back in their institution. Despite these limitations, findings in this study confirmed current research in that child molesters have higher rates and continue to recidivate over longer periods of time in comparison to rapists. Moreover, the findings underscore the importance of long-term supervision with child molesters given that this group of sex offenders re-offends over longer periods of time than other groups of sex offenders.

In addition, this study made no attempt to control for the impact of treatment on recidivism risk. It is the position of this researcher that the effect of treatment on recidivism rates merits attention. However, examination of the interaction of treatment on recidivism was beyond the scope of this study. Whether treatment is effective in curbing sexual recidivism among sexual offenders is still quite controversial. There is a body of literature supporting the notion that psychological treatment can be effective in reducing sexual recidivism (Hall, 1995; Hanson, Gordon, Harris, Marques, Murphy, Quinsey, & Seto, 2002; Maletzky & Steinhauser, 2002; Marshall, Jones, Ward, Johnston, & Barbaree, 1991). However, much of this research has been conducted with follow-up periods of five years or less (Hanson et al., 2002),

and has demonstrated that some treatments (e.g., behavioral therapy) may wear off within five years (Hall, 1995; Maletzky & Steinhauser, 2002). Moreover, offenders who are receiving treatment within correctional institutions receive less benefit from treatment than those being treated in outpatient clinics (Hall, 1995). Studies have also demonstrated differential treatment impacts based on category of offender, with rapists treated with cognitive-behavioral programs demonstrating a considerably higher failure rate (i.e., recidivism risk) in comparison to treated child molesters (Maletzky & Steinhauser, 2002; Marshall et al., 1991).

Overall, it is difficult to clearly respond to the question as to whether treatment is effective in reducing recidivism due to a variety of methodological issues (e.g., type of treatment, type of offender, screening offenders, treatment risk over time, defining treatment failure). Hanson and colleagues (2004) recently attempted to control for many of these factors. They evaluated the effectiveness of a standardized community sex offender program (CSOP) on recidivism during a 12 year follow-up period (sex offenders released from Canadian federal institutions had been mandated to participate in the program). The researchers demonstrated no differences in rates of sexual, violent, or general recidivism for treated and untreated sexual offenders. They also provided evidence that the quality of the treatment program was not effective in reducing rates of recidivism. It is worth noting that these researchers did not assess whether treatment reduced recidivism risk with any particular type of sex offender. Their findings were in accordance with those of Schweitzer and Dwyer (2003), who also found no significant reduction in recidivism of a group of sex offenders following participation in a CBT program. Henceforth, the effect of treatment on recidivism remains an important area of investigation, especially since at least 40

percent of sex offenders receive community sentences and at least one percent will only receive a fine (Statistics Canada, 1999).

Moreover, the present study was retrospective and relied upon archival records to examine predictors of recidivism. The information gathered for the study was obtained from medical and psychiatric files compiled during the offenders' pre-trial hearing. Some of this information (e.g., childhood history, alcohol use) was based on self-reports of the offender. These offenders may at times have been somewhat reluctant to reveal the true extent of their deviant and criminal behavior because of the influence of these assessments on their judicial hearings. Nonetheless, the researcher used the data that existed in the file, and relied on the fact that it was relatively accurate and reliable. There were several benefits in conducting this type of retrospective investigation including access to a large number of subjects, the opportunity to follow offenders for an extended period of time, availability of large amounts of data, and the reduced demand on scarce resources (i.e., personnel and financial) associated with prospective investigations.

Finally, the study examination of factors and predictors of recidivism relied heavily on static factors. Research suggests that changing an offender's risk level requires consideration of dynamic factors that are changeable (Hanson & Harris, 2003). Albeit only one dynamic factor (i.e., alcohol use) was evaluated in the present study, it was found to be predictive of recidivism among incest offenders. Identifying and treating incest offenders with this problem may impact upon future recidivistic criminal acts.

Future Directions

In the present investigation, sexual recidivism of the various sex offender groups was examined as either a presence or absence outcome, regardless of the

nature of the new sex crime or the relationship between offender and victim. There is evidence to suggest that a portion of sex offenders will display a *cross-over* in their sexual offending (Abel et al, 1988; Rabinowitz Greenberg, 1999; Studer et al., 2000). One line of research, for example, demonstrated that a substantial percentage of incest offenders (approximately 59%) have a history of non-incestuous sex offences (Studer et al., 2000). This research brings into question how accurately we are able to make discrimination between offender categories. It would be worthwhile to examine the frequency at which this phenomenon occurs and to gain an understanding of the offenders who target a variety of victim types and age groups. This research could further our knowledge pertaining to the sex offender typology, highlight needs and risk factors that should be targeted in these groups, and further the understanding of correctional staff in monitoring these types of offenders.

This study highlighted many recidivistic characteristics that were particularly salient to child molesters as a group (e.g., age, age of first offence, psychopathy). This research presented the opportunity to highlight the uniqueness of the child molester population. Preliminary research demonstrates that the understanding of child molesters can be further refined when examining them on the basis of the gender of the victim (Abel et al.; 1988; Hanson et al, 1993; Prentky et al., 1997). For instance, recent evidence demonstrates that *boy victim* child molesters re-offend at a higher rate than *girl victim* child molesters (Hanson, 2004). In general, research examining this typology has been sporadic in its publications, and it has provided contradictory findings (e.g., Abel et al, 1988 vs. Hanson et al., 1993). Good risk assessments require accurate knowledge; thus, this line of research begets additional research to clarify the knowledge of professionals in the forensic and correctional field.

A surprising finding for the researcher during the course of this investigation was the paucity of research examining recidivism among incest offenders. The general tendency in the literature is to collapse incest offenders with extra-familial child molesters and to examine recidivism and characteristics of sexual offending for the group as a whole (e.g., Beech et al, 2002; Hanson & Bussière, 1998; Hanson et al., 1993; Proulx et al., 1997). However, the current investigation revealed that recidivists in the incest group had characteristics that were unique from extra-familial child molesters (e.g., childhood historical factors, characteristics of the index offence, and the inability of phallometry to distinguish recidivists from non-recidivists). These findings suggest that incest offenders merit greater attention in an effort to fully understand the characteristics of this population and to determine those factors that place them most at risk to re-offend sexually, violently, and generally.

While the present investigation further demonstrated that indices of sexual deviance may be relatively poor at predicting sex offenders who are prone to re-offend, there is literature to suggest that recidivism can be better predicted by the combination of sexual deviancy and psychopathy (e.g., Firestone et al, 2000; Serin et al., 2001). That is, the effect of sexual deviance and psychopathy on recidivism may be additive (Quinsey et al., 1995; Serin et al., 2001). Sexual offenders with more psychopathic traits and higher indices of deviant sexual arousal tend to recidivate sooner and more frequently than sexual offenders lower on both of these indices (Serin et al., 2001). At present there is only limited evidence to support these findings (Firestone et al, 2000; Serin et al., 2001). Nonetheless, these results suggest that risk assessments for sexual offenders may be enhanced with those who are above the median on deviant sexual arousal by including information regarding psychopathy

(Serin et al, 2001). These findings merit further attention as they may have implications for management of offenders while on supervision.

CHAPTER 6: CONCLUSION

In conclusion, the present investigation achieved several of its goals. The study illustrated that the frequency and rate of recidivism will vary as a function of offender group, type of crime, and length of follow-up period. It also demonstrated that, although certain factors are common to sex offenders who re-offend, there are also distinct differences between groups of sex offenders. In this effort, the project served to confirm current clinical and research knowledge of sex offenders as well as to underscore the heterogeneity of this group of offenders.

The importance of identifying offenders at risk of re-offending cannot be overstated. Most offenders will be returned to the community prior to the end of their sentence. Correctional Service of Canada statistics suggest that approximately 51% of federal sex offenders are released into community supervision (Motiuk & Belcourt, 1996). Thus, it is necessary that appropriate systems and sanctions be in place during periods of supervision. The data in the study identified combination of factors salient to identifying offenders within groups of sex offenders at highest risk to re-offend. Moreover, the data in the present study underscore the necessity of long periods of supervision, especially for groups of child molesters. It is hoped that the present research will provide fodder for other researchers to further refine our knowledge regarding recidivism among sub-groups of sex offenders. It is evident that this knowledge can only improve upon our understanding of sexual offenders and in our ability to protect society at large.

APPENDIX A: CONSENT FORM

APPENDIX A

Many of the questions in this package concern issues which are highly personal. Therefore, whether you answer them or not is your choice. However, if you choose to respond to them, it is important that your answers be as honest and as accurate as possible.

CONSENT

I _____, hereby consent to answer the attached questionnaires. Furthermore, provided that my name is kept confidential, I consent to the use of this information for research purposes.

Date _____ Signature _____

Date _____ Witness _____

APPENDIX B: AN EXAMPLE OF A CPIC REPORT

DATE AND PLACE OF DISPOSITION DATE ET LIEU DE LA DISPOSITION	CHARGE - ACCUSATION	DISPOSITION	DATE, PLACE, CHARGE AND DISPOSITION DATE, LIEU, ACCUSATION ET DISPOSITION	DISTRIBUTION
1981-12-22 OTTAWA ONT	POSS OF A NARCOTIC SEC 3(1) NC ACT (OPP ROCKLAND 110-01)	CONDITIONAL DISCHARGE & PROBATION FOR 1 YR	1981-12-22 - OTTAWA ONT TRAFFICKING IN A NARCOTIC, POSS OF A NARCOTIC FOR THE PURPOSE OF TRAFFICKING, CONSPIRE TO COMMIT AN OFFENCE - WITHDRAWN	X01 OPP ROCKLAND ONT 11-15-110-01
1986-05-22 OTTAWA ONT	(1) POSS OF NARCOTICS SEC 3(1) NC ACT (2) POSS OF NARCOTICS SEC 3(1) NC ACT (PF OTTAWA ONT 195743)	(1) \$100 I-D 30 DAYS (2) \$1200 I-D 60 DAYS	1986-05-22 POSS OF NARCOTICS FOR THE PURPOSE OF TRAFFICKING SEC 4(2) NC ACT - WITHDRAWN (PF OTTAWA ONT 195743)	02 CORR SERV SCARBOROT ONT
1989-04-03 OTTAWA ONT	(1) SEXUAL ASSAULT CBH SEC 246.2(C) CC (2) BREAK ENTER & COMMIT SEC 306(1) (B) CC (3) FORCIBLE CONFINEMENT SEC 247(2) CC (OTTAWA PF 195743)	(1) 7 YRS (2-3) 2 YRS ON EACH CHG CONC & CONC		03 INST MILLHAVEN BATH ONT
1993-12-13	STATUTORY RELEASE VIOLATOR	STATUTORY RELEASE		04 NPB KINGSTON ONT
1996-01-17	STATUTORY RELEASE VIOLATOR	RECOMMITTED		

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Positive identification can only be confirmed through submission of
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Le dossier peut ou non se rapporter à l'objet de vos recherches.
L'identification positive ne peut être confirmée qu'avec les empreintes
digitales.

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Information supported by fingerprints,
submitted by law enforcement agencies,
Distribution to authorized agencies only.

Reenseignements communiqués par les organismes d'exécution
de la loi et corroborés par des empreintes digitales. Diffusion
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