THE DEVELOPMENT AND VALIDATION OF THE VIOLENCE RISK SCALE: SEXUAL OFFENDER VERSION (VRS:SO) AND ITS RELATIONSHIP TO PSYCHOPATHY AND TREATMENT ATTRITION

A Thesis Submitted to the College of Graduate Studies and Research in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the Department of Psychology

University of Saskatchewan

Saskatoon

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Abstract

The sexual abuse of women and children is a widespread problem. As such, it has become an important priority to advance risk assessment technology to identify high risk offenders to be targeted for treatment. The body of research involves the initial development, revision, and subsequent psychometric evaluation of an instrument designed to appraise risk for sexual offense recidivism – the Violence Risk Scale: Sexual Offender version (VRS:SO). Study 1 describes the initial development of the VRS:SO, which is comprised of Hanson and Thornton's (1999/2000) Static 99 and 19 dynamic risk factors. The instrument was rated on 321 sex offenders treated through the Clearwater Program on the basis of information gathered from their institutional files. Criminal history and recidivism data were gathered from official criminal records. A series of psychometric analyses were conducted. The instrument showed acceptable internal consistency reliability and the results of an exploratory factor analysis on the dynamic component of the instrument yielded an orthogonal three-factor model. Finally, the Static 99, dynamic factor component, total aggregate scale, and derived factors were all found to predict and postdict multiple offense-related criteria.

Study 2 describes the revision of the VRS:SO. This process entailed the replacement of the Static 99 by an 8-item actuarial scale that was constructed on a randomly selected half of the sample, and cross-validated on the remaining half. The sex offender sample was followed an additional two years for an overall average follow-up time of 10.0 years. Psychometric analyses were conducted on the revised instrument. The static factors, dynamic factors, and scale total predicted multiple sexual recidivism criteria, and to a lesser extent, non-sexual violent recidivism. Moreover, ROC analyses conducted over varying follow-up
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intervals revealed changes in the VRS:SO's predictive accuracy with respect to sexual recidivism as the follow-up time increased.

Study 3 investigates the relationship of psychopathy and sexual deviance to recidivism. The PCL-R was rated on a stratified subsample of 113 offenders randomly drawn from the original pool of 321 offenders, and the VRS:SO and recidivism data were incorporated into the analyses. The PCL-R provided a small to moderate prediction of sexual recidivism and a considerably stronger prediction of non-sexual recidivism. The instrument also converged with the VRS:SO in theoretically meaningful ways. Finally, the relationship of psychopathy and sexual deviance to recidivism were examined through survival analyses. Psychopathic sex offenders who were rated high on sexual deviance (as measured by the VRS:SO) evidenced a higher and faster rate of sexual reconviction than non-deviant psychopathic and non-psychopathic sex offenders. Finally, Study 4 examines attrition from sex offender treatment in a sample of 318 offenders from the Clearwater program. Several demographic, psychiatric, and criminal history variables were coded and VRS:SO, PCL-R and recidivism data were incorporated into the analyses. Compared to successful program completers, dropouts had lower education levels, more sporadic employment history, were less likely to have ever been married, spent less time in treatment, and were more likely to receive a diagnosis of Antisocial Personality Disorder or to meet the PCL-R criteria for psychopathy. Although dropout was correlated with scale dimensions of the VRS:SO (indicating that dropouts were higher risk for sexual recidivism), the relationship of the VRS:SO to attrition was diminished considerably after controlling for PCL-R score. Finally, program non-completers were more likely to sexually recidivate (39%) than successful program completers (29%), although this difference was not statistically significant.
GENERAL INTRODUCTION

The sexual abuse of women and children is a widespread problem in North America. Johnson and Sacco (1996) report from the Statistics Canada survey on the maltreatment of women, that approximately 40% of all women have been subjected to a completed sexual assault or violent sexual attack since the age of 16. Moreover, sexual abuse is a vastly underreported crime. While the so-called “dark figure” for all criminal activity hovers around 72% (Andrews & Bonta, 1998), the figure for sexual abuse may be even higher. For instance, Chapell and James, (1974; as cited in Furby, Weinrott, & Blackshaw, 1989) reported that out of 315 rapes phoned in to the Seattle Police in 1974, only 15 actually resulted in a conviction of the perpetrator. Finally, sexual abuse has tragic and often longstanding sequelae. Women who are sexually assaulted often experience nightmares and flashbacks of the incident, evidence clinical depression, develop fears and phobias (e.g., men, streets at night), and are plagued by problems in sexual functioning and their intimate relationships (Becker, Skinner, & Abel, 1983). Children who are sexually molested may become victimizers themselves, recapitulating their pattern of childhood abuse throughout their teenage years and into adulthood (Marshall & Barbaree, 1990; Romanow & De Luca, 1997). Given the nature of this serious and vastly underreported problem, the identification and management of individuals at high risk for committing new sex offenses once released from custody, is paramount.

Fortunately, a large and growing array of risk assessment instruments specifically for sex offender populations have been developed within the last decade including the Rapid Risk Assessment for Sexual Offense Recidivism (RRASOR; Hanson, 1997), Sex Offender Risk Appraisal Guide (SORAG; Quinsey, Rice, & Harris, 1995), Static 99 (Hanson &
Thornton, 1999/2000), Sexual Violence Risk-20 (SVR-20; Boer, Hart, Webster, & Eaves, 1998), Multifactorial Assessment of Sex Offender Risk for Recidivism (MASORR; Barbaree, Seto, Langton, & Peacock, 2001), Minnesota Sex Offender Screening Tool (MnSOST; Epperson, 1995 as cited in Hanlon, Zacher, and Larson, 1997), and the Sex Offender Need Assessment Rating (SONAR; Hanson & Harris, 2000/2001). Many of these instruments show considerable promise in the prediction of sexual recidivism but present with other psychometric concerns. One common problem is simply a lack of validation research on these instruments. Many of these instruments are "in-house" measures developed to provide a more structured means of appraising the risk of their clientele prior to their release. Although showing considerable promise, whether or not these instruments actually predict sexual recidivism remains an empirical question that can only be answered through psychometric research. A second common problem is that many of these instruments are purely static in nature and are incapable of assessing changes in offender risk. Although some of these measures have demonstrated excellent predictive accuracy for sexual recidivism, they offer few guidelines for intervention and are incapable of detecting any changes in risk that may arise as a result of treatment (the problems associated with actuarial tools will be discussed in greater detail in the literature review in Study 1). Finally, although some of these instruments incorporate dynamic factors to assist in treatment planning and evaluating change, they lack a coherent mechanism for articulating the amount and nature of change that might occur over the course of treatment.

Over the past 4 years, a new instrument for appraising risk and predicting sexual offense recidivism has been developed, revised, and empirically evaluated at the Regional Psychiatric Centre (RPC) — the Violence Risk Scale: Sexual Offender version (VRS:SO).
The current work is divided into a series of four studies devoted towards the development and validation of the VRS:SO. Study 1 describes the development phase of the initial version of the instrument which included Hanson and Thornton's (1999/2000) Static 99 and 19 dynamic risk factors culled from the sexual recidivism literature. In this study, the instrument was subsequently rated on a large and heterogeneous sample of sex offenders and subjected to various psychometric analyses including item analyses, internal consistency reliability, factor analysis, postdictive validity analyses (i.e., correlations with measures of past behavioral phenomena, such as offense history), and several predictive validity analyses as a means of evaluating the instrument's capacity to predict several sexual recidivism criteria.

Study 2 entails the revision and validation of the VRS:SO on the same sample of offenders. The study includes a description of changes made to the content and wording of the dynamic factors. In addition, it describes the construction and cross-validation of a new static scale to replace the Static 99 as the static portion of the VRS:SO. A psychometric evaluation of the new and revised VRS:SO follows, with an emphasis on the instrument's capacity to predict several sexual and non-sexual recidivism criteria after an additional 2-years follow-up from the first study.

Study 3 examines several intriguing theoretical and empirical questions concerning the role of psychopathy and sexual deviance in sexual offense recidivism. In this study, the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) has been rated on a stratified subsample of sex offenders from the first two studies. Base rates of psychopathy among different sex offender types are examined and a series of psychometric analyses involving the PCL-R are performed, including a factor analysis, its convergence with the VRS:SO, a comparison between psychopaths and non-psychopaths on sex offender risk measures, and
the relationship of the PCL-R to several sexual and non-sexual recidivism criteria. Finally, the relationship of psychopathy and sexual deviance to sex offense recidivism is explored through survival analyses and univariate statistical analyses. Implications for the validity and utility of the PCL-R in the assessment of risk for sexual offense recidivism are discussed.

Finally, Study 4 examines the problem of attrition, or dropout, from sex offender treatment and its relationship to risk for recidivism. A comprehensive protocol was rated on the same sample of offenders from the previous study. Participants who successfully completed sex offender treatment were then compared to non-completers on several demographic, psychiatric, criminal history, and program-related variables. The relationship of the VRS:SO and psychopathy to program attrition are also investigated, along with the relationship of non-completion to various sexual and non-sexual recidivism criteria. Some suggestions are offered to reduce sex offender program attrition through an attention to specific responsivity issues.
STUDY 1: THE DEVELOPMENT AND VALIDATION OF THE VIOLENCE RISK SCALE: SEXUAL OFFENDER VERSION (VRS:SO)

1. Literature Review

1.1 Some Difficulties Associated with the Prediction of Recidivism

The assessment of risk and prediction of violent/sexual recidivism is a complex and daunting task that presents clinicians with numerous pitfalls and difficulties. These include problems with low base rates and associated methodological issues (e.g., Doren, 1998; Hanson & Bussière, 1996/1998; Prentky, Lee, Knight, & Cerces, 1997; Wormith & Goldstone, 1984), the financial and emotional costs associated with errors in judgment (i.e., false positives and false negatives) (Andrews & Bonta, 1998; Marshall, Eccles, & Barbaree, 1993; Prentky & Burgess, 1988), and the woeful inaccuracy with which clinicians have traditionally predicted dangerousness (Webster, Douglas, Hart, & Eaves, 1997).

Prior to the 1960's, the accuracy of clinicians in predicting future dangerousness had received little or no systematic research attention. It was merely assumed that clinicians were accurate at predicting violent behavior in their clients. The case of New York v. Johnny Baxtrom (Webster et al., 1997) is particularly noteworthy in this regard. Baxtrom was an inmate approaching the end of a prison term when he was involuntarily detained on the grounds that he had a mental disorder and thus posed a grave risk for future violence. Baxtrom challenged this ruling in court on the grounds that it violated his civil liberties, and won. His acquittal sparked the release of an additional 966 psychiatric patients who were similarly being detained on the grounds that they too were at risk for violence – these individuals were dubbed the “Baxtrom patients.” The Baxtrom patients were closely monitored for four years after their release in the community; however, only 20% of these
patients committed new crimes. Moreover, the majority of these crimes were "nuisance offenses" such as public drunkenness and vagrancy. Only a small minority of these new offenses were violent in nature (Webster et al., 1997).

Fortunately, advances in risk prediction technology in recent years has warranted a cautious optimism about the capacity of mental health professionals to accurately predict future violence, sexual offending, or other types of criminal recidivism – although the predictive accuracy of unstructured clinical judgment may not have changed much (see section on actuarial risk assessment below). The case of Baxtrom highlights several problems inherent in the prediction of violent (and sexual) recidivism, one of which is the modest but controversial link between violence and mental disorder (e.g., Hodgins, 1993; Monahan, 1993; 1997), and secondly, and more germane, it illustrates the problem of low base rates.

Base rates refer to the "a priori chance that a member of a specified population will have a certain characteristic, if we know nothing else about this person other than that he or she is a member of the population we are examining" (Finn & Kampuis, 1995, p.224). As it pertains to violent or sexual offending, the base rate of recidivism would refer to the proportion of individuals who commit new violent or sexual offenses after being released from custody. Recidivistic violence is a relatively rare and infrequent event, and sexual recidivism (a narrower category of violent recidivism) is even rarer (e.g., Firestone, Bradford, McCoy, Greenberg, Larose, & Curry, 1999; Hanson & Bussière, 1996/1998; Hanson, Scott, & Steffy, 1995; Proulx, Pellerin, Paradis, McKibben, Aubut, Ouimet, 1997; Quinsey, Rice, & Harris, 1995; Rice, Harris, & Quinsey, 1990; Rice Quinsey & Harris, 1991). As such, the less common an event happens to be, the more likely clinicians will err when trying to predict it. As such, clinicians are most likely to overpredict sexual and
nonsexual violence, thereby committing false positive errors; that is, an individual is predicted to commit a new violent or sexual offense but never does so (Mossman, 1994; Rice & Harris, 1995).

To further complicate the base rate enigma, Doren (1998) identifies several additional problems in our use of base rates to gauge the frequency of sexual recidivism. Perhaps one of the most significant problems concerns inconsistencies in the definition of recidivism. Base rates of sexual recidivism can vary based on the manner in which recidivism is defined. More conservative definitions of recidivism yield lower base rates, whereas less stringent definitions yield higher estimates (e.g., Prentky, Knight, Lee, and Cerces, 1997). For instance, Prentky, Knight, Lee, and Cerces (1997) retrospectively examined base rates of sexual recidivism in a sample of 115 child molesters and 136 rapists over a 25-year period following their release from prison. Prentky et al. noted that base rates of sexual recidivism changed with different definitions of recidivism. When recidivism was defined as any charge or re-arrest for a new sex offense, 52% of the child molesters and 39% of the rapists, recidivated. However, when the definition was changed to only include new convictions for sex offenses, the base rate estimates dropped to 41% for child molesters and 24% for rapists. Finally, when an even more conservative definition for recidivism was employed, a new incarceration for a sex offense, the base rates plummeted to 37% for child molesters, and 19% for rapists.

A second concern is that inadequate follow-up periods can generate base rates that underestimate the frequency of recidivism. For instance, after 5 years only 19% of Prentky et al.’s sample of rapists had been charged for a new sex offense, versus 26% after 10 years, and 39% after 25 years. With child molesters, 19% were charged for a new sex offense after
5 years, in comparison to 30% after 10 years, and 52% after 25 years. Similarly, in a 15 to 30-year follow-up study of 196 child molesters released from custody, Hanson, Scott, and Steffy (1993) found that 42% of the men were reconvicted for committing new sex offenses. Although the increase in recidivism base rates seems to decelerate over the years, these findings clearly indicate that sexual offenders can still present a marked risk to re-offend up to decades after their release.

A final methodological issue in the use of base rates is that not all sex offenses are reported, and not all offenders are apprehended for their sex crimes (Doren, 1998, Lisak & Miller, 2002). Chappell and James’ (1974; as cited in Furby et al., 1989) survey suggests that only a small minority of actual rapes result in a conviction of the perpetrator. Furthermore, a survey conducted by Abel and Rouleau (1990) on 561 child molesters and rapists also revealed that sex offenders typically report having committed more offenses and amass a greater number of victims than what they are eventually charged, convicted, or incarcerated for. However, our definitions of recidivism are based on the shaky assumption that the majority of sex offenders are in fact caught. Moreover, we test the predictive accuracy of risk assessment tools and evaluate the effectiveness of treatment programs using definitions of recidivism that hinge on the ability of law enforcement personnel to detect and arrest sex offenders.

Doren’s (1998) criticisms and the findings from Prentky et al. (1997) and Hanson et al.’s (1993) long-term studies demonstrate that research using adequate follow-up periods (e.g., minimum 5-10 years) and appropriate definitions of recidivism, can yield base rates that are sufficiently high to warrant some optimism in accurately predicting sexual recidivism. Doren (1998) advocates using the most liberal criterion to define recidivism (i.e.,
any charge or re-arrest for a sex offense), given the problems associated with underreporting sex crimes, detecting offenders, multiple victims, plea-bargaining and so forth. Notwithstanding these obstacles to obtaining accurate base rate estimates, recent developments in risk assessment technology have enabled clinicians to predict sex offense recidivism with increasing accuracy.

1.2 The Evolution of Sex Offender Risk Assessment

Ideally, the process of conducting any risk assessment is a comprehensive, time-consuming endeavor, that involves combining, weighting, and integrating multiple forms of information, assessing several domains of individual functioning, collected from a variety of different sources (Boer, Hart, Eaves, Webster, 1998). However, there is marked heterogeneity in the approaches used to assess risk. For example, Bonta (1996) conceptualizes risk assessment in the form of a multigenerational hierarchy, comprising three different dimensions of risk. The "first generation" of risk assessment refers to subjective clinical judgment, or what Grove and Meehl (1996) aptly referred to as being "informal," "subjective," and "impressionistic" (p.293). First generation approaches to the prediction of recidivism (or other behavioral phenomena) involve making decisions about dangerousness on the basis of subjective judgment. They are often conducted on a case-by-case basis and eschew empirical validation. The subjective clinical approach typically involves an unstructured interview with the client, and perhaps a perusal of file information or other forms of documentation. The information gathered, however, is based on the personal discretion of the assessor, and decisions regarding an offender's dangerousness are based on non-observable, informal criteria. Although clinical judgment is the oldest and most widely
endorsed prediction procedure (Bonta, 1996; Grove & Meehl, 1996), it suffers from several important limitations.

Perhaps most seriously, the guidelines for collecting information and interpreting data are subject to personal judgment (Bonta, 1996). For example, the clinician would rely on personal knowledge about sex offenders or crime in general, and proceed to subjectively weight and combine this information in arriving at an appraisal of an offender’s risk for committing a future offense. However, information may or may not be relevant, and the assessor’s pet theories or schemas of criminal behavior may or may not be correct. Moreover, clinical judgment has been shown to be markedly inferior to second generation or actuarial approaches to risk assessment in predicting sex offense recidivism, in addition to other behavioral phenomena (Bonta, Law, & Hanson, 1998; Hanson & Bussière, 1996/1998; Mossman, 1994).

1.2.1 The “Second Generation:” Static Actuarial Risk Assessment Measures

A second alternative to recidivism prediction refers to purely actuarial approaches, or what Bonta (1996) has touted, the “second generation” of risk assessment. Grove and Meehl (1996) in turn, have referred to these approaches as “formal,” “mechanical,” and “algorithmic” (p.293). Actuarial risk assessment instruments are purely empirically derived tools. Typically, they are aggregate scales comprised of a set of individual predictor variables that have been selected based on their statistical relationship with the criterion of interest (Andrews & Bonta, 1998). In the case of sex offense recidivism, for example, variables are incorporated into these instruments based on whether they have been empirically demonstrated to predict sexual recidivism or to discriminate sex offense recidivists from non-
recidivists. Research investigating the relative predictive efficiency of actuarial, as opposed to clinical, approaches attests to the actuarial method’s superior predictive abilities with respect to a variety of behavioral phenomena (Andrews & Bonta, 1998, Bonta, Law, & Hanson, 1998; Grove, Zald, Lebow, Snitz, Nelson, 2000; Hanson & Bussière, 1998; Meehl, 1954; Mossman, 1994).

In his seminal book on the clinical-statistical debate, Meehl (1954) reviewed the research comparing the two methods in their accuracy for predicting various outcomes, including psychiatric prognosis, academic achievement, criminal recidivism and so forth. Out of the 20 studies conducted up to the time of his review, only one provided distinct support in favor of the clinical approach to prediction, compared to 11 favoring the mechanical-statistical approach, and 8 providing equal support for either method. Nearly 50 years later, Grove, Zald, Lebow, Snitz, and Nelson (2000) conducted an extensive meta-analysis of 136 studies comparing clinical and actuarial approaches to prediction. Studies were drawn from the health and behavioral sciences. Overall, 46% (63) of the investigations demonstrated a clear advantage for actuarial methods, 48% (65) yielded equal performance, and only 6% (8) showed a clear advantage for the clinical approach. Moreover, in 7 of the 8 studies favoring clinical methods, the clinician was provided with more information than the actuaries. A breakdown of the studies by field also demonstrated that forensic investigations comparing clinical and actuarial methods in the prediction of recidivism yielded a particularly large advantage in favor of the statistical approach (mean difference of a transformed effect size = .89).

Mossman (1994) compared the predictive accuracy of the clinical approach versus more empirical, behavior-based strategies, in the prediction of violent behavior among
psychiatric patients. Rather than computing effect sizes, Mossman used Receiver Operating Characteristic (ROC) analyses to evaluate accuracy in judgment. The area under the curve (AUC) was computed for 13 studies using behavior-based approaches and 17 studies employing clinical judgment. Overall, the behavior-based approaches were significantly stronger predictors of future violence (mean AUC = .78) than clinical judgment alone (mean AUC = .67).

Bonta, Law, and Hanson (1998) later conducted an ambitious meta-analysis on 58 recidivism studies of mentally disordered offenders, in an attempt to elucidate potential risk markers for general and violent recidivism in this population. Their findings conveyed several important messages. For one, the same risk markers based on a social learning theory of criminal conduct (i.e., Andrews & Bonta, 1998) for general offender populations also proved to be the strongest predictors of future criminal behavior in mentally disordered offenders. So-called psychopathological correlates (e.g., psychosis, adjudicated not guilty by reason of insanity, mood disorder) proved to be of little predictive value, whereas risk markers grouped into categories covering criminal history, deviant lifestyle, and personal demographic characteristics were strong predictors of violent and general criminal conduct. Secondly, and more germane, Bonta et al. (1998) also compared the relative predictive accuracy of objective assessment procedures (e.g., traditional risk scales, methods derived from traditional risk scales) to clinical judgment. Consistent with previous meta-analytic reviews, objective risk assessments were shown to markedly outperform clinical judgment in predicting both general (mean weighted r's = .39 and .03 respectively) and violent recidivism (mean weighted r's = .30 and .09 respectively).
Finally, in a meta-analysis of 61 sex offender recidivism studies and over 23,000 convicted sex offenders, Hanson and Bussière (1998) found a clear advantage for actuarial schemes in predicting sexual recidivism over clinical judgment. Combined risk scales of predictor variables were substantially better predictors of sex offense recidivism (mean weighted $r = .46$) than clinical judgment alone (mean weighted $r = .10$). Moreover, statistical approaches were superior to clinical judgment in the prediction of nonsexual violence (mean weighted $r$'s = .46 and .06, respectively), and general recidivism (mean weighted $r$'s = .42 and .14, respectively).

The bulk of the forensic research literature strongly indicates that actuarial assessments of risk vastly outperform subjective clinical judgment in a variety of populations including violent offenders, mentally disordered offenders, and sexual offenders. Moreover, research from other academic and applied fields have repeatedly demonstrated the superiority of actuarially-based assessments in predicting a wide range of human behavioral phenomena (e.g., graduate school success, occupational choice, psychotherapy outcome etc.). The next section highlights some of the sex offender risk assessment instruments developed in the actuarial tradition, and evaluates their capacity to predict sexual recidivism. These instruments include the Violence Risk Appraisal Guide (VRAG), the Sex Offender Risk Appraisal Guide (SORAG), the Rapid Risk Assessment for Sexual Offence Recidivism (RRASOR), and the Static 99.
1.2.2 Actuarial Instruments for Predicting Sexual Recidivism

*Violence Risk Appraisal Guide.*

The Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993) is a 12-item actuarial instrument designed to predict violent recidivism. It was developed on a sample of 618 mentally disordered offenders released from a maximum security psychiatric facility and followed up for an average period of 6.8 years in the community. Stepwise multiple regression procedures were used to identify the best weighted linear combination of predictor variables that maximized predictive accuracy. Taken together, these 12 variables yielded a multiple correlation of $R = .44$ with violent recidivism and an AUC of .76. The strongest predictor was PCL-R score, which yielded a univariate correlation of .34 with violent recidivism. The 11 remaining items included demographic, psychiatric, and criminal history variables, which had each made significant contributions in the prediction of violence recidivism.

Although demonstrating strong predictive accuracy with respect to non-sexual violence, the VRAG is a less potent predictor of sexual recidivism. In an attempt to cross-validate the VRAG on a sample of 159 child molesters and rapists monitored for 10 years in the community, Rice and Harris (1997), found that VRAG score was a significant but modest predictor of sexual recidivism ($r = .20; \text{AUC} = .62$), although it did perform well with respect to violence in general ($r = .47; \text{AUC} = .77$). Furthermore, the VRAG performed even worse on an extended follow-up with a larger sample of 288 sex offenders ($r = .17; \text{AUC} = .60$), although its capacity to predict all future violence was still respectable ($r = .44; \text{AUC} = .76$).

Moreover, Barbaree, Seto, Langton, and Peacock (2001) evaluated the predictive accuracy of 6 actuarial instruments on a heterogeneous sample of 215 sex offenders.
Development and Validation of the VRS:SO

followed-up an average of 4.5 years after their release from prison. Overall, 9% of the sample sexually re-offended and 24% violently (including sexual) re-offended. Included among the battery of measures, the VRAG again proved to be a weak predictor of sexual recidivism ($r = .11$, AUC = .58), despite being a strong predictor of violent and general recidivism. Even less impressive findings were obtained by Sjöstedt and Långström (2002) in a Swedish sample of 51 rapists, with the VRAG being a nonsignificant predictor of sexual reconviction ($r = -.01$, AUC = .58). The VRAG's limited capacity to predict sexual recidivism, however, likely reflects the fact that the majority of its items pertain uniquely to nonsexual violent offending, and the instrument overlooks several salient factors uniquely predictive of sexual recidivism (e.g., sexual deviance).

*Sex Offender Risk Appraisal Guide.*

Quinsey, Rice, and Harris (1995) later applied stepwise regression methods to develop a different actuarial tool for the specific purpose of predicting sexual recidivism. The Sex Offender Risk Appraisal Guide (SORAG; Quinsey, Rice, & Harris, 1995) was developed from 11 predictor variables differentially weighted based on the magnitude of their univariate relationship with sexual recidivism. Quinsey et al. (1995) validated this instrument on a sample of 178 child molesters and rapists who were followed for an average of 59 months in the community. Twenty-eight percent of the sample were convicted for a new sex offense, and 40% for any violent offense. The best linear combination of predictor variables yielded a high univariate correlation ($r = .45$) with sexual recidivism, and a slightly stronger relationship with violent recidivism ($r = .46$). Among the variables that demonstrated the strongest relationships with sexual recidivism were PCL-R score, a deviance index from
phallometric testing, previous convictions for sex offences, previous violent offences, previous male victim, previous child victim, and never having been married.

Recently, at least two studies have been published that have made some effort to cross-validate the SORAG. Barbaree et al.'s (2001) extensive evaluation of risk assessment instruments also included the SORAG, although this instrument’s capacity to predict sexual and violent (including sexual) recidivism was remarkably less spectacular than demonstrated in the original validation study (r = .17, AUC = .68 and r = .30, AUC = .71, respectively). On the other hand, in a sample of 114 intrafamilial and extrafamilial child molesters, Rice and Harris (2002) found more encouraging support for both the VRAG and SORAG with both instruments proving to be strong predictors of sexual recidivism (AUC = .81, both instruments).

Rapid Risk Assessment for Sexual Offense Recidivism.

Based on the results from a previous meta-analysis (Hanson & Bussiere, 1996/1998), Hanson (1997) developed a brief actuarial screening tool for assessing sex offense risk -- the Rapid Risk Assessment for Sexual Offence Recidivism (RRASOR; Hanson, 1997). The RRASOR is a brief rating scale comprising four different static variables, each of which had been empirically proven to predict sexual recidivism in the meta-analysis: previous history of sexual offenses (convictions and charges), young age (i.e., under 25 years) upon release, unrelated to the victim, and male victim. The RRASOR can be scored extremely quickly and is frequently incorporated into comprehensive risk assessments.

Hanson (1997) developed and validated the RRASOR on a sample of 2,592 sex offenders from 7 databases throughout North America and the United Kingdom. Despite its
brevity, the RRASOR was found to be a strong predictor of sexual recidivism ($r = .27$; AUC = $.71$). Total scores on the RRASOR can range from 0 to 6 points, and individuals receiving a score of 0-1 are classified as low risk, from 2-3 moderate risk, and from 4-5 as high risk (no offender in Hanson's normative sample received a score of 6). Moreover, offenders classified at more serious risk levels using the RRASOR's cutoffs, were shown to recidivate at higher rates (e.g., a group of offenders classified as low risk (0-1) recidivated at a lower frequency than offenders scoring moderately (2-3)).

Recently, two additional sex offender recidivism studies have supported the predictive accuracy of the RRASOR. In a 92-month follow-up investigation of 51 Swedish rapists, Sjöstedt and Långström (2002) found the RRASOR to be the only measure out of a battery of instruments that significantly predicted sexual reconviction ($r = .10$, ROC area = .73). Moreover, in their sex offender recidivism prediction study described above, Barbaree et al. (2001) evaluated the predictive accuracy of the RRASOR among their battery of measures. Overall, the RRASOR boasted the highest predictive accuracy out of all the instruments with respect to sexual recidivism ($r = .26$, ROC area = .73) in addition to providing a strong but less impressive prediction of violent recidivism ($r = .20$, ROC = .65).

**Static 99.**

Finally, Hanson and Thronton (1999/2000) developed the Static 99 -- a 10-item actuarial risk scale comprised entirely of static risk variables. The Static 99 represents an amalgamation of the RRASOR and Grubin's (1998) Structured Anchored Clinical Judgment (SACJ) into a scoreable risk scale with enhanced predictive power. Although the RRASOR is easily administered and is a strong predictor of sex offense recidivism, its content is biased
towards sexual deviance. Moreover, the SACJ also has demonstrated predictive accuracy with respect to the prediction of sexual and nonsexual violence, but its content is weighted more heavily towards nonsexual criminal history (Hanson & Thornton, 1999). Hanson and Thronton (1999/2000) examined the predictive accuracy of the Static 99, SACJ and RRASOR with respect to nonsexual violent and sexual recidivism, on a sample of 1,301 incarcerated sex offenders from four different databases from North America and the United Kingdom. Using ROC analyses and Pearson correlations, the Static 99 demonstrated superior predictive accuracy with respect to sexual recidivism (AUC = .71; r = .33) over the RRASOR (AUC = .68; r = .28) and SACJ (AUC = .67, r = .23). The Static 99 was also a strong predictor of nonsexual violence (AUC = .69; r = .32), and demonstrated greater predictive accuracy over the RRASOR (AUC = .64; r = .22) and SACJ (AUC = .64; r = .22).

The Barbaree et al. (2001) study, discussed above, also included the Static 99 among the arsenal of sex offender risk assessment instruments that were evaluated. Among the six measures, the Static 99 evidenced a significant although less impressive relationship with sexual recidivism (r = .18, ROC area = .68), and somewhat surprisingly, proved to be a stronger predictor of violent (including sexual) (r = .28, ROC area = .70) and general recidivism (r = .34, ROC area = .76). The Static 99 is currently the most widely used sex offender risk assessment instrument, having been adopted into regular use throughout North America and translated into several languages abroad (Hanson, 2002).

Despite their promise in accurately predicting sex offense recidivism, the second generation static actuarial instruments also present numerous disadvantages (Andrews & Bonta, 1998; Bonta, 1996). First of all, actuarial measures tend be entirely atheoretical in nature. They are aggregate collections of predictor variables selected only by virtue of their
statistical relationship with the criterion of interest. There is generally no theoretical rationale for guiding the selection of variables or in developing the instrument. A second problem is that the items included in these measures tend to be static or historical in nature. These refer to unchanging variables, such as age of first offense and criminal history, which do not reflect the dynamic nature of risk. As such, static actuarial instruments are often incapable of assessing an offender’s capacity to change, for instance, with treatment. While actuarial instruments could certainly incorporate dynamic risk factors (i.e., using an atheoretical, empirical approach to select items), the majority of these tools tend to be purely static in nature. Finally, static actuarial instruments often tend to only include a small and limited number of risk variables (e.g., to cite an extreme example, the RRASOR only has four), rather than capturing the broader spectrum of variables that impact an offender’s risk.

1.2.3 “Third Generation” (Risk/Need) Risk Assessment Measures

In recent years, a new “generation” of risk assessment has succeeded strictly actuarial approaches – this is what Bonta (1996) has aptly touted a “third generation” of risk assessment. Third generation risk instruments differ from second generation instruments in several respects. For one, third generation instruments incorporate both static and dynamic risk factors. Static risk factors refer to historical, unchanging variables that impact an offender’s risk such as criminal history, age at index offense, and characteristics of past victims. Dynamic risk factors, on the other hand, refer to variables impacting an offender’s risk, which are amenable to change, usually over the course of treatment (e.g., procriminal attitudes, substance abuse, anger management). Thus, third generation instruments possess the capacity to assess the degree to which an offender has changed on certain criminogenic
dimensions, and whether or not there has been any substantive change in his or her level of risk for re-offending.

Secondly, third generation instruments are also characterized by some form of underlying theory guiding the development of the instrument, and in selecting and operationalizing risk variables. Risk factors are incorporated into the instrument, not only by virtue of their empirical relationship to recidivism, but also in light of some guiding theory of criminal conduct or recidivism (Andrews & Bonta, 1998). Third, among the small array of third generation instruments developed to assess recidivism, these have so far included a larger number of risk factors than actuarial measures, and thus tap a broader spectrum of variables that impact an offender’s risk. Finally, third generation instruments permit greater flexibility in scoring and arriving at an appraisal of the offender’s risk. Although item scores are typically summed and used as a reference for appraising the offender’s risk, allowances can also be made for adjusting the offender’s risk rating in light of certain exacerbating or mitigating factors.

1.2.4 “Third Generation” Instruments for Predicting Sexual Recidivism

The array of third generation instruments for assessing sex offense recidivism is small but growing; however, the research support for the validity and reliability of these instruments at this point seems to be weak or nonexistent. Some recently developed instruments include the Sexual Violence Risk-20 (SVR-20; Boer, Hart, Eaves, & Webster, 1998), the Minnesota Sex Offender Screening Tool (MnSOST; Epperson, Kaul, & Huot, 1995 as cited in Hanlon, Larson, & Zacher, 1997), and the Registrant Risk Assessment Scale (RRAS; Witt, DelRusso, Oppenheim, & Ferguson, 1996). Moreover, although not originally
developed for the purpose of risk assessment, the Psychopathy Checklist Revised (PCL-R; Hare, 1991) has also proven to be a moderate predictor of sexual recidivism (the relationship between psychopathy and sexual recidivism is detailed in the literature review in Study 3).

*Sexual Violence Risk-20 (SVR-20).*

The SVR-20 (Boer, Hart et al., 1998; Boer, Wilson et al., 1998) is a 20-item sex offender risk appraisal guide representing a “distillation of current professional and scientific wisdom” about risk factors that impact the imminence, frequency, severity, and probability of recidivistic sexual violence (p. 339). The SVR-20 is subdivided into three major sections or subcomponents. The first section comprises risk variables pertaining to the individual’s psychosocial adjustment including sexual deviation, childhood abuse, psychopathy, mental disorder, relationship difficulties, employment problems, past nonsexual violence history, supervision history and so forth. The second section assesses the extent and severity of the individual’s history of sexual offending including a high density of sex offenses, multiple sex offense types, use of threats or gratuitous violence, escalation of frequency or severity of sex offenses, extreme denial or minimization, and offense supportive attitudes. The third and final section consists of two risk factors that indicate the individual’s future plans: lacks realistic plans and negative attitude toward intervention. Each item is evaluated according to a three-tiered scheme: whether the risk factor doesn’t apply, applies to some extent, or definitely applies; however, no numerical point rating is assigned to the risk factor. A summary risk rating (low, medium, high) is then applied based on the number, combination, and severity of risk factors present. The authors caution that the SVR-20 is not a risk scale, in the sense that scores are not summed to arrive at a global risk rating for sexual recidivism.
Although the SVR-20 represents a positive development in sex offender risk assessment, it is not without its limitations. First, some items on the SVR-20 are not empirically substantiated and thus may be of dubious predictive value. For instance, although variables such as denial and childhood abuse are common components of a comprehensive risk assessment, research has yet to support their individual relationships to sexual recidivism (e.g., Hanson & Bussière, 1998). In addition, although the SVR-20 was designed with the intention of reducing the subjectivity of clinical judgment and to provide more room for flexibility and professional discretion than allowed by actuarial tools, the SVR-20 offers little in the way of explicit criteria for scoring the instrument and presents few guidelines for determining the summary risk rating.

Recently, in a 92-month follow-up study of 51 incarcerated rapists, Sjöstedt and Långström (2002) evaluated the predictive accuracy of a version of the SVR-20 translated into Swedish. To evaluate the instrument, the researchers rated each item on a 3-point (0, 1, 2) scale. The aggregate score of the instrument was weakly and inversely related to sexual reconviction ($r = -0.10$, ROC area = 0.49), although interestingly it was strongly associated with non-sexual violent reconviction ($r = 0.24$, ROC area = 0.64). When disaggregated into the scales’ subcomponents, the SVR-20 did not perform substantially better. Each scale component was weakly and inversely related to sexual reconviction, including the Psychosocial Adjustment component ($r = -0.10$, ROC area = 0.47), Sexual Offenses component ($r = -0.06$, ROC area = 0.50) and global summary risk rating ($r = -0.04$, ROC area = 0.56). Interestingly, the Psychosocial Adjustment component proved to be a strong predictor of non-sexual violent reconviction ($r = 0.31$, ROC area = 0.71).
Registrant Risk Assessment Scale (RRAS).

The Registrant Risk Assessment Scale (RRAS; Witt et al., 1996) is a 13-item scale designed to assist New Jersey legal authorities in classifying convicted sex offenders into risk categories. It is comprised of four sections that are differentially weighted based on their relationship to sexual offense severity and recidivism. The first two sections are primarily composed of static factors, and the last two sections are entirely dynamic in nature. The first section assesses offense severity and includes three items: degree of force, degree of contact, and age of victim. The second section taps the individual’s offending history and includes items such as victim selection, number of offenses/victims, duration of offensive behavior, length of time since last offense (a dynamic variable), and history of antisocial acts. The third section assesses specific offender characteristics including substance abuse, and his or her response to treatment. The final section assesses the individual’s level of community support including therapeutic support, residential support, and employment/educational stability.

Each item is scored on a three point scale in terms of its impact on offense risk: a point rating of 0 indicates low risk, 1-point rating, moderate risk, and a 3-point rating, high risk. Possible scores range from 0 to 111 points, and the offender is placed into low, medium, and high risk tiers based on his or her aggregate score.

Some preliminary work supports the RRAS’s predictive accuracy and its capacity to classify offenders into different risk levels. Ferguson, Eidelson, and Witt (1999) examined the predictive accuracy and factorial validity of the seven RRAS static factors on a sample of 574 adult male sex offenders. Offenders comprised roughly equal-sized groups subdivided on the basis of their sentencing and corresponding risk level: probation (i.e., low risk), state prison (moderate risk), and the Adult Diagnostic and Treatment Center (ADTC, high risk). A
principle components analysis yielded two orthogonal factors which Ferguson et al. labeled *forcible assault* and *sexual deviance*. Moreover, the ADTC/high-risk group scored significantly higher on a majority of the risk factors than the low (6 out of 7) and moderate risk (5 out of 7) groups. A discriminant function analysis further correctly classified 57% of the probationers, 59% of the state prisoners, and 60% of the ADTC members.

Although some support for the positive predictive power and sensitivity of the instrument was obtained, no research has yet to examine the ability of the RRAS to predict sexual recidivism. In addition, the predictive accuracy of the RRAS was evaluated with respect to a priori defined risk levels, rather than recidivism per se. It is not known how well these categories themselves predict (e.g., whether ADTC offenders in fact, recidivate at higher levels than state prisoners), and hence whether they are even suitable criteria by which to judge the RRAS’s predictive accuracy. It is also unclear how well the dynamic portion of the instrument predicts recidivism or classifies offenders.

*Minnesota Sex Offender Screening Tool (MnSOST).*

Finally, the Minnesota Sex Offender Screening Tool (MnSOST; Epperson et al., 1995 as cited in Hanlon et al., 1997) is a 21-item risk assessment scale, with variables differentially weighted based on their individual capacities to predict re-offending. Although the MnSOST has some dynamic variables, most items are static in nature and encompass domains such as victim characteristics, number of previous victims, crime characteristics, institutional history, paraphilias and so forth. A cutoff score of 47 is applied to dichotomize sex offenders into risk categories (≥ 47 indicates above baseline and increased risk).
Hanlon, Larson, and Zacher (1999) examined the predictive capabilities of the MnSOST in a sample of 20 sex offenders released from the North Dakota State Penitentiary. Offenders were at risk between 38 and 62 months in the community. Offenders were assigned "recidivism scores" based on their progress in the community: a score of 1 was assigned to offenders who were not re-incarcerated, 2 for probation violators, and 3 for new nonsexual offenses, 4 for new sex offenses (no rationale was offered for the derivation of recidivism scores). Limited sample notwithstanding, the MnSOST was a strong predictor of sexual recidivism, correlating highly with recidivism score at $r = .48$. Moreover, the cutting score of 47 correctly classified 16 of the 20 offenders - all but one sex offense recidivist were correctly classified, and 18.8% of the nonrecidivists were misclassified as sexual recidivists. Although the results of Hanlon et al. (1999) seem promising, these results are in need of replication using a larger sample, longer follow-up period, and more methodologically defensible measures of recidivism (e.g., recidivism-no recidivism (1-0), number of new sex offenses, sex offense commission rate).

The MnSOST's predictive accuracy for sexual, violent, and general recidivism was also examined in the Barbaree et al. (2001) study, although this investigation used a newer 16-item version of the instrument. In the new version, 12 items comprise a Historical subsection of the instrument including sex offending history, diverse victims, excessive force, stranger victims, prior substance abuse, adolescent antisocial behavior, etc. The remaining 4 items comprise an Institutional component of the instrument including items such as age at release, discipline history while incarcerated, involvement in substance abuse treatment, and sex offender treatment. The aggregate scale proved to be only a modest predictor of sexual ($r = .14$, ROC area = .65) and violent recidivism ($r = .13$, ROC area =
.58), although it was strongly associated with general (any) recidivism ($r = .25$, ROC area = .65). In addition, the Historical and Institutional items subtotals were weak predictors of sexual recidivism ($r = .11$ and .08, respectively).

Despite some of the positive advances in the development of sex offense risk assessment technology, there remains an urgent need for a comprehensive, quantifiable, and dynamic instrument for the prediction of sexual recidivism. Many of the current "third generation" instruments designed to assess sexual recidivism (including those reviewed) contain redundant information, are not sufficiently comprehensive, lack clear scoring criteria or decision rules for ascertaining offender risk level, or contain items lacking in empirical support or theoretical backing. Moreover, research has yet to investigate the true predictive validity of many of these instruments, for instance through correlations with sex offense recidivism or ROC analyses.

Bonta (1996) alludes to a newer, emerging trend in risk assessment that has been touted a "fourth generation." Currently, the fourth generation concept is being articulated and refined. Thus far, one of its defining features include assessing the magnitude of offender change on salient criminogenic dimensions over the course of treatment, and the consequent reductions in risk for recidivism that may result. The Violence Risk Scale (Wong & Gordon, 1999) represents such a trend in the assessment of violence risk and the prediction of recidivism, which compensates for some of the myriad shortcomings of existing risk assessment tools.
1.3 Towards Another Generation in Risk Assessment: The Violence Risk Scale (VRS)

The Violence Risk Scale (VRS; Wong & Gordon, 1999) is an instrument designed to predict future violence that merges actuarial and clinical traditions. It consists of 6 static and 20 dynamic risk variables (see appendix A) that have been empirically and theoretically linked to violence risk (Wong, 2000). The items comprising the static component of the VRS are each rated on a 4-point scale from 0 to 3, with increasing values indicating greater levels of violence risk with respect to a particular item. The dynamic component of the VRS is further divided into two parts: pre-treatment and post-treatment. The pre-treatment component measures the offender's standing on various dynamic dimensions of violence risk prior to receiving any intervention. The scoring of the pre-treatment component is further subdivided into two key aspects. First, each dynamic item is also rated on a 4-point scale: a 0-point rating indicates that the risk construct is absent or bears little relation to the offender's risk. A 3-point rating indicates that the risk construct is present and has significant bearing on the offender's risk. A rating of 1 indicates some presence of the risk construct (i.e., less positive than a rating of 0) whereas a rating of 2 indicates a greater prominence of the item in terms of its impact on the offender's risk for future violence (i.e., more positive than a rating of 3). Static and pre-treatment dynamic items are then summed to yield an aggregate score representing the offender's level of risk prior to receiving any intervention.

Secondly, the dynamic portion of the instrument is based on Prochaska, Norcross, and DiClimente's (1992) transtheoretical model of the change process. As a client would experience more significant and enduring behavioral change and increasing insight into his or her own problem areas, they would progress through a series of stages indicating greater improvement and change. Prochaska et al. conceptualized this therapeutic change process as
occurring across five separate stages: the precontemplation, contemplation, preparation, action, and maintenance stages. After a point rating is assigned to a dynamic risk factor pre-treatment, the rater then makes a determination of the offender’s acknowledgment and understanding about their problem area on each risk factor according to Prochaska et al.’s scheme. For example, an offender might receive a point rating of 2 on a particular item (e.g., criminal attitudes), and then be assessed as occupying the preparation stage of the change process. If a zero point rating has been assigned, however, then the risk factor has little relevance to the offender’s potential for violence, and Prochaska et al.’s scheme would not apply.

1.3.1 Measuring Change: The VRS, Post-treatment

The post-treatment component of the VRS assesses the amount of change that has occurred with respect to each dynamic risk factor following treatment. First, the quality of change evidenced by the offender on each dynamic risk factor is evaluated using Prochaska et al.’s scheme. Thus, the offender is evaluated as occupying the maintenance, action, preparation, or contemplation/ precontemplation stage of change for a given risk factor (elaborate descriptions of the each factor as it changes according to Prochaska et al.’s scheme is provided in the scoring manual). Second, points are then deducted from each item based on the number of stages the offender has progressed in changing over the course of treatment with respect to a given risk area. A deduction of -1.5 is made if the offender has demonstrated progress across three levels of change with respect to a given risk factor. A deduction of -1.0 points for two stages of improvement, -0.5 for one stage of improvement, and 0 points if the offender continues to occupy the same stage of change on a particular risk
factor as when he or she started treatment. Finally, should the offender actually deteriorate over the course of treatment with respect to a given risk item, a value of +.5 is added for each stage that the offender has regressed for that item.

For example, an offender may have been assigned a 2-point rating on the Criminal Attitudes factor and be evaluated as occupying the preparation stage in terms of the amount of change he has made in addressing his procriminal attitudes. After completing an institutional cognitive skills program, he is judged as having progressed to the action stage in terms of showing improvement in his procriminal attitudes. As having progressed from the preparation stage to the action stage illustrates a one-stage leap of progress, a value of -0.5 is deducted from his initial (i.e., pre-treatment) rating; thus his post-treatment rating for that item would be a final value of 1.5.

1.3.2 Psychometric Properties of the VRS

The VRS has strong predictive validity with respect to violence (Burt, 2000; Wong & Gordon, 1999; Wong Gordon, Vander Veen, & Gu, 1999), convergent and discriminant validity with respect to other violence risk measures (Gordon, 1998), and high internal consistency and interrater reliability (Burt, 2000; Gordon, 1998). Despite the body of psychometric research accumulated on the VRS concerning its ability to predict violence, it has limited applicability to sex offender populations. Sex offenders are a remarkably heterogeneous group of individuals (Knight & Prentky, 1990; Prentky & Knight, 1991, Worling, 2001), and the variables impacting a sex offender's risk tend to differ from those predictive of nonsexual violence (Hanson & Bussière, 1996/1998; Hanson & Harris, 2000).
Thus, this project has been implemented with the intent of revising the VRS in order to improve its applicability to sex offender populations.

1.4 Development of the Violence Risk Scale: Sexual Offender Version

Despite the growing body of research conducted at the RPC supporting the VRS’s capacity to predict future violence, its value as a sex offender risk assessment tool is limited in many important ways. Perhaps most importantly, the VRS consists of a series of static and dynamic risk markers that are uniquely related to nonsexual violence, and not necessarily sex offending (e.g., violent lifestyle, history of escapes/release failures, violence during incarceration, etc.). On the converse, many important dimensions uniquely predictive of sexual recidivism (e.g., sexual deviance, sex offending history, sexual compulsivity), are also overlooked by the instrument.

In particular, given the notion that sex offender treatment has been shown to reduce sex offense recidivism (Alexander, 1999; Gallagher, Wilson, Hirshfield, & Coggeshall, 1999; Hall, 1995; Marques, Nelson, Alarcon, & Day, 2000; Nicholaichuk, Gordon, Wong, & Gu, 2000) there is a persistent need to develop a comprehensive instrument that can identify targets for treatment. The main objective of the current study was to develop a risk-needs assessment protocol for sex offenders that could measure progress, and consequent decrements in risk, that would occur on sex offender-specific criminogenic dimensions over the course of treatment.
1.4.1 Revision Procedure and Rationale: Static Factors.

The static component of the VRS was replaced in its entirety by Hanson and Thornton's (1999) Static 99. As outlined above, the Static 99 is a 10-item actuarial rating scale designed to assess risk for sex offense recidivism. It has demonstrated acceptable predictive accuracy over and above other actuarial instruments designed for similar purposes (Hanson & Thornton, 1999). Moreover, perhaps with exception to some of the age-related variables (e.g., current age), the majority of the six static variables of the original VRS bore equivocal relationships to sexual recidivism (e.g., violence throughout lifespan, stability of upbringing), and overlooked many other relevant static or historical variables (e.g., male victim, never married, previous sexual offenses). The most parsimonious alternative appeared to be to substitute Hanson and Thornton's measure in place of the VRS static factors. Although the aggregate VRS has received empirical support, the predictive properties of the individual items comprising this measure is less clear. A review of the empirical literature documenting the relationship of each static variable to sexual offense recidivism follows.

S1 Prior sex offenses (charges or convictions).

The notion that past behavior is the best predictor of future behavior has become a fundamental truism in the field of risk prediction. Risk prediction studies have repeatedly demonstrated that criminal history is a potent and robust predictor of general recidivism (Gendreau, Little, & Goggin, 1996), violent recidivism (Harris, Rice, & Quinsey, 1993; Klassen & O'Connor, 1988; Villeneuve & Quinsey, 1995), and sexual recidivism. Prior sexual offense history is a powerful predictor of sex offense recidivism in all sex offenders including rapists, child molesters, and incest offenders. In one of the most ambitious
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investigations on sex offense recidivism conducted to date, Hanson and Bussière (1998) conducted a meta-analysis of 61 sex offense recidivism studies and over 23,393 sex offenders, finding a strong relationship between a history of previous sex offenses and recidivism (mean weighted $r = .19$). In a sample of 111 boy-victim child molesters, Prentky, Knight, and Lee (1997) found that sexual recidivists had a greater number of previous sex offenses than nonrecidivists. A discriminant function analysis of previous sex offenses, fixation, and paraphilias also correctly classified 73% of the recidivists. In a 64.5 month follow-up study of 113 rapists and 269 child molesters, Proulx, Pellerin, Paradis, McKibben, Aubut, and Ouimet (1997) found that reconvicted offenders of both types had more previous charges and convictions for sex offenses, than those who did not re-offend. Firestone, Bradford, McCoy, Greenberg, LaRose, and Curry (1999) followed up a sample of 251 incest offenders for an average of 6.7 years. In total, 6.4% of the offenders were charged or convicted for a new sex offense. Recidivists also had more sexual charges and/or convictions prior to their index offenses than nonrecidivists. Finally, Hanson and Harris (2000) found that nearly twice as many offenders who committed new sex crimes in their sample had juvenile sex offenses than nonrecidivists (37.7% and 21.7% respectively).

Some evidence also exists for crime-specialization as it relates to sex offending. For instance, Hall and Proctor (1987) found that male sex offenders who had committed previous sex offenses against adults were at an increased risk for future sex offenses against adults. The same trend was found for sex offenses against children, in which case previous acts of child molestation was significantly predictive of future acts of child molestation. In short, most investigators who have examined the link between a history of previous sex offenses and recidivism have been successful in documenting the relationship (e.g., Broadhurst &
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Maller, 1992; Fitch, 1962; Grunfeld & Norick, 1986; Hanson, Steffy, & Gauthier, 1993; Hanson, Scott, & Steffy, 1995; Langstrom & Grann, 2000; Mair & Stevens, 1994; Quinsey, Lalumiere, Rice, & Harris, 1995; Quinsey, Rice, & Harris, 1995; Rasmussen, 1999; Reiss, Grubin, & Meux, 1996; Rice, Quinsey, & Harris, 1991; Studer & Reddon, 1998; Tracy, Donnelly, Morgenbesser, & Macdonald, 1983).

S2 Prior sentencing dates.

A history of prior admissions to corrections or of being sentenced has also been linked with increased risk for sex offense recidivism. This item denotes that there has been some degree of criminal justice involvement and that the offender has been adjudicated. Offenders who persist in offending despite previous involvement with the justice system present a markedly different scenario than those who may have committed a series of past offenses but who are entering the legal system for the first time (Grubin, 1997). For instance, in a sample of 136 extrafamilial child molesters followed-up in the community for an average of 6.3 years, Rice et al. (1991) found that having previous admissions to the Oakridge Hospital was a significant predictor of sex offense recidivism ($r = .18$). In a related follow-up study of incarcerated rapists discharged into the community, Rice et al. (1990) found that those individuals who were reconvicted for a sex offense had significantly more prior admissions to a maximum-security hospital than those who remained offense free. Finally in the development of the Sex Offender Risk Appraisal Guide (SORAG), Quinsey et al. (1995) identified previous admissions to corrections in general, and to Oakridge in particular, to be significant predictors of sex offense recidivism. These two factors contributed to a linear combination of predictor variables that jointly predicted sexual reconviction ($r = .45$).
S3 Non-contact sex offenses.

Some research literature indicates that a history of non-contact sex offenses (e.g., exhibitionism, voyeurism, frotteurism) may increase an individual's risk for sexual offense recidivism (Hanson & Bussière, 1998; Marshall, Jones, Ward, Johnston, & Barbaree, 1995). For instance, in their meta-analysis, Hanson and Bussière (1998) found a small but seemingly robust relationship between a history of exhibitionism and sexual recidivism across 14 studies ($r = .09$). In addition, a very small but significant inverse relationship was obtained between degree of sexual contact and sexual recidivism, suggesting less victim contact to be associated with increased risk for recidivism.

Perhaps owing in part to the relative ease with which such offenses can be perpetrated, non-contact sex offenders also tend to accumulate a large number of victims and to evidence particularly high recidivism rates. For instance, in a controlled treatment outcome study of exhibitionists, Marshall, Barbaree, and Eccles (1989; as cited in Marshall et al., 1991) found that 39.1% (17.8% official conviction) of treated exhibitionists committed a new sex offense, in contrast to 57.1% (23.8% official) of the untreated men. Although this finding points to the efficacy of treatment in reducing recidivism, it also highlights the high base rates of recidivism associated with this category of sex offender. Some clinical lore has also dubbed exhibitionism a "gateway" sexual offense, implying that the commission of more benign criminal sex acts (e.g., indecent exposure) opens the door to more severe sex offenses (e.g., sexual assault), although exhibitionists seldom attempt bodily contact with their victims (Davis, 2001).
Prior non-sexual violent offenses.

A history of nonsexual violence (e.g., armed robbery, assault, murder) has also been linked to an elevated risk for future sex offending. For instance, Firestone et al. (1999) found that recidivist incest offenders had a greater number of violent criminal charges or convictions prior to their index offenses than non-recidivists. Among a sample of 178 child molesters and rapists, Quinsey, Rice, and Harris (1995) found previous nonsexual violent convictions to be predictive of future sexual offending, and noted that recidivists also had a more extensive history of other nonsexual convictions than nonrecidivists. Moreover, Reiss, Grubin, and Meux (1996) examined treatment response and outcome in a group of 49 young psychiatric inpatients, each with the legal classification of psychopathic personality disorder. Individuals who sexually recidivated upon being released to the community were more likely to have had previous convictions for assault or causing bodily harm. The relationship between past nonsexual violence and sexual recidivism has also been observed separately with rapists (Rice, Harris, & Quinsey, 1990; Proulx et al., 1997), child molesters (Rice, Quinsey, & Harris, 1991), and combined samples of both groups of offenders (Hall & Proctor, 1987; Hall, 1988; Hanson & Bussière, 1996/1998; Quinsey, Lalumiere, Rice, & Harris, 1995).

Index non-sexual violence.

An increased risk for sexual recidivism has also been found with respect to the presence of gratuitous violence or aggression in the index offense (although the mere concurrence of a nonsexual conviction with a sexual offense on the same sentencing date is less clear). For example, Kahn and Chambers (1991) examined the predictors and correlates
of sexual recidivism in a two-year follow-up study of 221 juvenile sex offenders. In total, only 7.5% received new convictions for a sex offense. Juveniles who used verbal threats in the commission of their sex offenses tended to recidivate at a higher rate than youth who did not threaten their victims. Maletzky (1991) evaluated the efficacy of a behavioral treatment regimen at an outpatient sexual abuse clinic in a sample of 3,795 sex offenders. The offenders’ progress in the community was monitored between one and 17 years post-treatment, with a modal follow-up period of three years. In total, 9% of the sample were deemed “treatment failures,” a broad category that included a failure to complete treatment or to satisfactorily meet program objectives (e.g., control over deviant arousal), the recomission of any new sex offense, or any suspected sexual improprieties. Although Maletzky confounded treatment completion with actual recidivism in his definition of a treatment success or failure, some findings are particularly noteworthy. For instance, offenders who failed were significantly more likely to have used excessive physical force and to have used threats of harm to coerce their victims, than offenders who satisfactorily completed treatment and committed no further sex offenses.

*S6 Unrelated victim.*

Low base rates recidivism have been found with regularity among incest offenders (Firestone et al., 1999; Gibbens, Soothill, & Way, 1978; Quinsey et al., 1995), in comparison to other sex offenders. Indeed, having unrelated or extrafamilial victims has been shown to exacerbate an offender’s risk, to the extent that the presence of related or familial victims may even be viewed as a protective factor. Hanson et al. (1993) examined the long-term recidivism of a sample of 197 child molesters monitored up to 31 years in the community.
following their release from prison. Having intrafamilial female victims was found to be inversely related to sex offense recidivism ($r = -.17$). Moreover, in their investigation of the static and dynamic predictors of sexual recidivism, Poulx et al. (1997) found that recidivistic child molesters were significantly more likely to have an unrelated victim in their most recent sex offense, than non-recidivists (89.3% versus 51.5% respectively). Further, Maletzky (1991) found that offenders who “failed” in treatment were substantially more likely to have not been living with their victims, than were treatment successes. Finally, Tracy, Donnelly, Morgenbesser, and Macdonald (1983) reviewed data from the N.Y. State Department of Correctional Services on 141 sex offenders released from custody in 1972. Over a 5-year follow-up period, 33 offenders were returned to custody, 18 of which had committed a new sex offense. Offenders who committed no further sex offenses were significantly more likely to have had a familial victim in their index offense. Thirty percent of non-recidivists, 27% of those who had recidivated with a non-sex offense, and none of the sexual recidivists, had been originally convicted for an incest offense.

_S7 Stranger victim._

Sex offenders (both rapists and child molesters) who perpetrate their offenses against stranger victims (i.e., known for less than 24 hours) also present an increased risk for sex offense recidivism. For example, in their meta-analysis Hanson & Bussiere (1998) obtained a sizeable mean-weighted correlation between having a stranger victim and sexual recidivism ($r = .15$). Hanson and Harris (2000) replicated this finding in a later study and noted that significantly more sexual recidivists in their sample had stranger victims than non-recidivists (50.2% versus 35.0%). Further, Maletzky (1991) found that offenders who committed their
offenses against relative strangers were nearly five times as likely to fail in treatment than if the victim had been known to them. Finally, Studer and Reddon (1998) observed the link between having a stranger victim and sex offense recidivism in a sample of 127 sex offenders discharged from treatment ($r = .20$) at the Alberta Hospital Phoenix Program.

S8 Male victim.

A history of previous male victims, such as the case with boy-victim child molesters, is another robust risk factor for sexual recidivism. For example, Hanson et al. (1993) observed a strong relationship between having exclusively boy victims and recidivism ($r = .25$). Although an exclusive preference for male victims may have particularly ominous implications for risk, the presence of any male victim in an individual’s history of offending is an important risk factor (Hanson, 1997). Findings from Maletzky’s (1991) outpatient study revealed that offenders who displayed homosexual pedophilia in their past offending were more likely to fail in treatment than individuals who did not molest boys. In a sample of 269 child molesters, Proulx et al. (1997) found that a significantly greater percentage of individuals who re-offended sexually, violently, or criminally had a male as their last victim prior to assessment. Several other studies have obtained similar findings indicating that sex offenders who select male victims are at an increased risk for sexual recidivism (Fitch, 1962; Hanson & Bussière, 1998; Langstrom & Grann, 2000; Quinsey, Lalumiere, Rice, & Harris, 1995; Rice et al., 1991).

Some studies have also indicated that having diverse victim types (e.g., both male and female victims) can further exacerbate an offender’s risk for sex offense recidivism. For instance, Hanson and Harris (2000) found that repeat sex offenders were significantly more
likely to have diverse victim types (both in age and in gender) than non-recidivists (53.8 and 33.3%). This corroborated Hanson and Bussière's (1998) earlier findings of a significant but modest relationship between having diverse victims and the commission of new sex offenses (mean weighted $r = .09$). Abel, Mittleman, Becker, Rathner, and Rouleau (1988) evaluated the efficacy of an outpatient sex offender treatment program, following up 98 child molesters in the community one year after completing treatment. In total, 12 out of the 98 offenders (12.2%) committed new sex offenses. Recidivists were more likely to have varied pedophilic behavior prior to treatment than non-recidivists. Recidivists were also significantly more likely to have both male and female victims (9/12 recidivists did), to have committed sex offenses against both children and adolescents, and to have previously committed both contact and no-contact sex offenses.

**S9 Young age (under age 25).**

Young age has been shown to be a strong and consistent predictor of recidivism, be it sexual (Fitch, 1962; Hanson & Bussière, 1996/1998; Proulx et al., 1997) violent (Harris et al., 1993; Klassen & O’Connor, 1988), or general recidivism (Bonta, Law, & Hanson, 1998; Gendreau, Little, & Goggin, 1996). Typically, in the sexual recidivism field, young age is considered to be under 25 years of age. As it relates to repeat sex offending, young age upon release from custody is an important factor impacting an individual’s risk. For instance, in their meta-analysis, Hanson and Bussière (1998) found a significant inverse mean weighted correlation between age and recidivism ($r = -.13$). Among a sample of juvenile sex offenders, Kahn and Chambers (1991) found that recidivists were significantly younger than nonrecidivists. Finally, Proulx et al. (1997) found that child molester recidivists who re-
offended, sexually, violently (including sex offenses), or criminally (i.e., all criminal activity) were significantly younger than their non-recidivating cohorts.

S10 Single marital status.

Offenders who have never been married or sustained a long-term romantic relationship with a live-in partner (generally two years) are also at a heightened risk to commit new sex offenses. For instance, Rice, Quinsey, and Harris (1991) observed a significant relationship between never having been married and reconviction ($r = -0.17$) for subsequent sex offenses in a sample of 136 child molesters. In Abel et al.'s (1988) follow-up investigation of child molester outpatients, marital status was the only demographic variable that differentiated sex offenders who committed new pedophilic acts from non-recidivists. Recidivists were significantly more likely to be divorced or single. Other studies examining the relationship between single marital status and sexual recidivism have also arrived at similar findings (Broadhurst & Maller, 1992; Fitch, 1962; Hanson & Bussière, 1998; Hanson, Steffy, & Gauthier, 1993; Quinsey, Rice, & Harris, 1995).

In sum, a large literature exists supporting the relationship of each individual static factor to sexual offense recidivism. An individual will present a markedly increased risk to sexually re-offend if he or she has an extensive history of sexual and/or nonsexual violence, repeated exposure to the criminal justice system, diverse and unrelated victims, has never been married, and is of young age. The next phase of the revision process entailed modifying the dynamic component of the VRS to increase its congruence with sexual offense recidivism.
1.4.2 Revision Procedure and Rationale: Dynamic Factors

The revision process of the dynamic component of the VRS began with a reasonably exhaustive review of the sex offense recidivism literature. Variables that had been shown to correlate significantly with sexual recidivism or had been shown to discriminate sexual recidivists from non-recidivists were considered for incorporation into the new instrument. In addition, any variables that were associated in some capacity with other indices of sexual violence such as increased severity or intrusiveness of offending, larger number of victims, longer duration of offending and so forth, were also considered for inclusion. From these efforts, a list of potential variables that had been empirically linked in some capacity to an increased risk for sexual recidivism, had been drafted.

Following the literature review and identification of potential variables, the revision of the dynamic component of the VRS involved a process that can be broken down into four successive steps: 1) the deletion of unrelated risk variables; 2) the retention of relevant variables; 3) the modification of certain risk variables; and 4) the addition of new risk variables.

An initial step involved deleting risk variables that were unrelated to sexual recidivism. Although these factors were relevant predictors of nonsexual violent recidivism, they either bore little or no relationship to sexual recidivism, or had not been identified in the literature as doing so. These deleted factors included Work Ethic, Criminal Peers, Violence During Incarceration, Weapon Use, and Security Level of the Releasing Institution. A second step involved retaining variables from the original instrument. These factors were predictive of future violence but were also empirically, or at least theoretically and logically, related to sexual recidivism and thus required little subsequent change. These factors included Criminal
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Personality, Interpersonal Aggression, Mental Disorder, Substance Abuse, Community Support, and Compliance With Supervision.

A third step involved modifying and rewording items with the intent of improving their relevance to sexual offending. This involved changing the superficial content of the item (which related primarily to non-sexual violence), while retaining the underlying offending theme of the variable. Thus, these variables were reworded in the direction of sexual offending without changing the underlying risk construct that they were designed to measure. These modified factors included the following: Violent Lifestyle was changed to Sexually Deviant Lifestyle, Insight into the Cause of Violence was changed to Insight, Stability of Relationships with Significant Others was changed to Acute (Critical) Stress, Violence Cycle was changed to Sexual Offending Cycle, Criminal Attitudes was changed to Attitudes Legitimizing Sexual Offending, and Cognitive Distortions was retained but the item wording was modified to include sex offender specific examples. Finally, new variables not included in the original version of the instrument were added. These new dynamic factors were empirically, theoretically, or conceptually predictive of sexual recidivism and included Sexual Compulsivity, Offense Planning, Affective State Associated with Sexual Offending, Treatment Compliance, and Deviant Sexual Preference.

Throughout the revision process, attempts were made to make the static and dynamic dimensions of the instrument overlap as much as possible, such that important static variables could be measured in dynamic terms. Thus, static items such as prior sex offenses and victim gender might be reflected in dynamic items such as deviant sexual preference.

In total, 19 dynamic risk variables were formulated and operationalized to comprise the dynamic dimension of the VRS:SO. Using Bonta's terminology, this feature combined
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with the static features of the Static 99, renders the VRS:SO a fourth generation risk assessment instrument for the prediction of sexual recidivism. Although in recent years some research efforts have been devoted towards identifying dynamic predictors of sex offense recidivism (Hanson & Harris, 1998/2000; Prentky et al.; Proulx et al. 1997), to date little attention has been given to this important area. Given the paucity of research attention allocated to the identification of dynamic risk predictors, some of these variables included in the VRS:SO have received more theoretical, than empirical, support. Below a brief description of the dynamic variables is provided, along with appropriate empirical support or theoretical rationale justifying each variable’s inclusion.

D1 Sexually deviant lifestyle.

This item refers to the extent to which sexual deviance is a key and integral of the person’s global lifestyle or everyday way of life (e.g., creating opportunities to sexually offend through babysitting, working in an arcade). Research has found that individuals who lead a lifestyle congruent with sexual deviance are at greater risk for repeat sexual offending. For instance, Hanson and Harris (2000) examined the relationships between myriad static and dynamic risk variables and sex offense recidivism in a sample of 208 recidivist and 201 non-recidivist sex offenders, evenly divided among rapists, boy-victim child molesters, and girl-victim child molesters. Information was gathered from interviews with 60 parole officers and a review of each study participant’s files. Overall, sexual recidivists (61%) were more likely to be judged to have a lifestyle congruent with their sexual deviance than non-recidivists (50%). Prentky, Knight, and Lee (1997) also found that recidivistic child
molesters were more often rated as highly fixated with children (i.e., a pattern of substantial sexual and social contact) than non-recidivistic molesters.

D2 Sexual compulsivity.

This item refers to the extent to which the offender has evidenced a clear pattern of compulsive sexual activity (e.g., frequent use of prostitutes, excessive masturbation). Compulsive sexual behavior has also been linked to sexual recidivism. Hanson and Harris (2000) found that sexual recidivists were more likely to have sexual pre-occupations and engage in socially deviant, although not necessarily illegal, sexual activities \( (r = .20) \) than non-recidivists. This relationship was particularly strong for boy-victim child molesters \( (r = .22) \) and rapists \( (r = .28) \) (Hanson & Harris, 2000). Firestone, Bradford, McCoy, Greenberg, Larose, and Curry (1999) found that recidivistic sex offenders rated themselves as having a higher sex drive on the Derogatis Sexual Functioning Inventory (DSFI) than non-recidivists. Although this finding was with respect to general criminal recidivism, a significant trend was observed in this variable's relationship to sexual recidivism. Finally, Marques, Day, Nelson, and West (1994) reported the progress from a long-term follow-up study examining the efficacy of a treatment program for high risk sex offenders (the Sex Offender Treatment Evaluation Project; SOTEP). Offenders who evidenced higher overall levels of sexual arousal during a phallicmetric assessment battery (both deviant and non-deviant stimuli) were also more likely to commit a new sex offense, than offenders with lower, more normal patterns of arousal.
D3 Offense planning.

This item refers to the extent to which the individual demonstrates a clear history of careful planning of his offenses, and/or has engaged in considerable victim grooming (e.g., befriending and building up the trust of a child). A prolonged period of planning one’s offense or grooming victims with the intent of sexually abusing them is also a pattern that serves to heighten an offender’s risk for future sexual misbehavior. According to Ward and Hudson (1998), the mental rehearsal of an offense increases the likelihood that such maladaptive behavior will occur, and that the offender will in turn, act on deviant thoughts and fantasies. The mental simulation of sexually abusive behavior makes the occurrence of that behavior more likely, and enables the offender to revise and refine his plans for offending. Deu and Edelman (1997) examined the role of fantasy in preplanned and repetitive sex offending in a sample of 48 men. Subjects were subdivided into equal sized groups comprising predatory sex offenders (i.e., significant planning in past offending), opportunistic offenders, nonsexual criminal offenders, and non-offenders. Each individual was, in turn, administered a set of Criminal Technique Fantasy Cards, a projective technique in which the individual observes the scene of a crime and then describes in his or her own words the events that lead up to, and transpired during, the crime. Predatory offenders showed considerably more elaboration and organization in their descriptions of the crime than opportunistic offenders. Interestingly, both impulsivity and planning were significantly correlated with the crime being committed again.

In an investigation of impulsivity in sex offenders, Prentky and Knight (1986) found that a high degree of lifestyle impulsivity in general (see D15 below) was associated with more serious sexual offending; however, rapists who evidenced low sexual offense
impulsivity (i.e., detailed planning with a particular victim in mind, or at least partial planning), actually had a larger number of serious adult sex offenses than rapists whose offenses were largely impulsive or were committed in a hasty manner without forethought. Sexual offenders who engaged in extensive planning with a particular victim, or at least in some form before targeting a specific victim, tended to commit more sexual offenses than those offenders who would perpetrate their offenses in a largely impulsive, unpremeditated way. Some evidence also suggests that prolonged periods of sexual and social contact with children predicts recidivism in child molesters. For instance, Prentky, Knight, and Lee (1997) found that their construct of fixation—a pattern of intense sexual preoccupation with children, marked by enduring relationships and several contacts—significantly discriminated recidivistic child molesters from non-recidivists.

D4 Criminal personality.

This item refers primarily to the personality (i.e., Factor 1) traits of psychopathy, including superficiality, glibness, grandiosity, lack of remorse, and shallow affect. Although most sex offender treatment programs extol the importance of establishing victim empathy, instilling remorse, and accepting responsibility for one's sexually abusive behavior (Marshall, 1996; 1999), there has yet to be much in the way of research explicitly examining the relationship between criminal personality traits and sexual recidivism. However, several studies have found a moderate relationship between aggregate scores on the Psychopathy Checklist Revised (PCL-R; Hare, 1991) and sex offense recidivism, and as such, it is this literature that is reviewed. For instance, Rice et al. (1990) found that PCL-R score was a strong predictor of subsequent sexual conviction ($r = .31$) in incarcerated rapists. During the
development of SORAG, Quinsey et al. (1995) also found the PCL-R to significantly predict sexual recidivism ($r = .23$), enough to warrant inclusion as a heavily weighted item in the scale. In their meta-analysis, Hanson and Bussière (1998) also found a small to moderate correlation between a diagnosis of antisocial personality (which is distinct from, but related to psychopathy) and sexual recidivism ($r = .14$). Lastly, Rice and Harris (1997) cross-validated the VRAG on a sample of 288 incarcerated sex offenders, and examined the impact of psychopathy and sexual deviance on sex offense recidivism through survival analyses. Overall, non-deviant psychopaths, non-deviant non-psychopaths, and deviant non-psychopaths sexually re-offended at approximately the same pace over the course of a 10-year follow-up; however, a significant interaction was observed between psychopathy and sexual deviance. The survival curve of deviant psychopaths fell precipitously, as deviant psychopaths failed much more rapidly and at a higher rate than the three comparison groups.

Seto and Barbaree (1999) examined the relationship between good treatment behavior, parole success, and sex offense recidivism in a sample of 283 sex offenders who had completed treatment. In total, 27.7% failed by having their parole revoked for a condition relevant to their sex offending history or for committing a new sex offense; PCL-R score was a significant predictor of parole revocation ($\beta = .17$). In addition, 7.6% of the offenders committed a new serious offense (defined as a sexual or nonsexual violent offense) during the follow-up period; again the PCL-R was a significant predictor of serious recidivism ($\beta = .15$). Unexpectedly, a significant interaction was also observed between treatment behavior and psychopathy that was highly predictive of serious recidivism. In particular, offenders who demonstrated better treatment behavior, motivation, made more treatment gains and the like were more likely to commit a new serious offense. Furthermore,
psychopaths who displayed good treatment behavior were five times more likely to commit a new serious offense than psychopaths with poor treatment behavior, or non-psychopaths exhibiting either good or poor treatment behavior.

Other studies (Hanson & Harris, 2000; Firestone et al., 1999; Rice et al., 1990) have found recidivistic sex offenders to be more psychopathic than non-recidivists. Firestone et al. (1999) found that incest offenders who committed new sex offenses had higher PCL-R scores than non-recidivists. Hanson and Harris (2000) obtained similar findings in a combined sample of child molesters and rapists. Sex offense recidivists not only had substantially higher PCL-R scores than non-recidivists (23.4 and 16.7 respectively), but significantly more recidivists also qualified for a diagnosis of psychopathy (20.5%) than non-recidivists (8.0%).

D5 Cognitive distortions.

Cognitive distortions refer to a set of self-statements or unsubstantiated thinking errors in which the individual maintains a distorted point of view regarding the offence or the victims (e.g., I gave the child sex education; she was only a prostitute). Cognitive distortions are considered to be instrumental in the onset and maintenance of sexual offending (Murphy, 1990; Bumby, 1996). For instance, Pithers, Kashima, Cumming, Beal, and Buell (1988) examined the immediate precursors of sexual offending in a sample of 136 child molesters and 64 rapists. A considerable majority of rapists (72%) and child molesters (65%) experienced cognitive distortions immediately prior to relapsing. A variety of measures of sex offender cognitive distortions have been developed in recent years (e.g., Abel, Gore, Holland, Camp, Becker, & Rathner, 1989; Bumby, 1996), which have established some
capacity to measure or predict risk. For instance, Abel et al.’s (1989) Cognition Scale assesses a variety of common cognitive distortions endorsed by child molesters to justify their sexual abuse of children. Multiple regression analyses demonstrated that cognition scores of child molesters were related to an increased duration of offending as well as more diverse victim types and molestation acts. Bumby (1996) also designed a set of related measures to assess cognitive distortions in child molesters and rapists. The number of cognitive distortions endorsed by both offender groups was significantly related to indices of severity of offending. Scores on the RAPE and MOLEST scales were significantly correlated with number of years of offending ($r = .30$ and .31 respectively), and the MOLEST scale was also strongly related to number of previous victims ($r = .22$).

Some research has also provided support in linking sex offense recidivism and the use of specific cognitive distortions to justify sexually abusive behavior and downplay personal responsibility. For example, in a sample of juvenile sex offenders, Kahn and Chambers (1991) found that youths who blamed their victims for their sex crimes were significantly more likely to be reconvicted for a new sex offense, than youths who did not. In a similar vein, Smith and Monastersky (1986) found that juvenile sex offenders who were incapable of understanding the wrongfulness and exploitativeness of their offending behavior, were substantially more likely to commit a new sex offense than those youth who did understand the gravity of their crimes. Finally, in Maletzky’s (1991) large-scale outpatient study, offenders who failed in treatment were significantly more likely to deny having committed their offenses (48.2%) than individuals who were successful (15.4%). Treatment failures were also more likely to deny any need for treatment than successful completers.
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D6 Interpersonal aggression.

This item refers to the habitual use of aggressive behaviors in interpersonal interactions which has, at some point, led to the commission of a sexual offense. This factor may be viewed as the dynamic counterpart of a history of nonsexual violence, which has been shown to predict future sexual aggression (Firestone et al., 1999; Proulx et al., 1997; Quinsey et al., 1995; Reiss et al., 1996; Rice et al., 1990; 1991). Some evidence also suggests that individuals who resort to violent or aggressive coping strategies at times of stress might also be at a heightened risk for sexual offending. For instance, Spaccarelli, Bowden, Coatsworth, and Kim (1997) found among a sample of 210 chronic delinquents, that juvenile sex offenders exhibited a significantly greater tendency to use aggressive control coping strategies to manage duress (i.e., coping by causing distress in others), than low-violent youths.

D7 Affective condition associated with sexual offending.

With respect to this risk variable, the individual has reported that some affective state is significantly associated with sexual offending, including negative affective states (e.g. loneliness, humiliation) or positive affective states (e.g. excitement, anticipation). The bipolar nature of this variable reflects the notion that offenders may experience a potential range of affective states prior to engaging in deviant sexual behavior; however, it is the repeated juxtaposition of powerful affect and sexual offending that places the individual at risk. For example, in their research into the dynamics of the sex offense relapse process, Pithers et al. (1988) noted that 89% of their subjects reported experiencing powerful affect prior to their offending. Ninety-four percent of rapists reported experiencing an intense
global anger (often arising from interpersonal conflict), whereas child molesters were more likely to report feeling anxious (46%) and/or depressed (38%).

McKibben, Proulx, and Lusignan (1994) explored the relationship between conflict, affect, and deviant sexual behavior in a sample of 13 rapists and 9 child molesters. The participants were residents in a medium security psychiatric hospital and were required to monitor their sexual fantasies, emotional states, masturbatory activities, and interpersonal conflict over the 60-day period of the study. For rapists, significant relationships were observed between interpersonal conflict and deviant sexual fantasy, negative mood and deviant fantasy, increased conflict and masturbatory activities while entertaining deviant fantasies, and negative mood and increased masturbatory activities while engaging deviant sexual fantasies. Interestingly, when conflict and negative mood were absent, deviant sexual fantasies did not occur and they were not coupled with deviant sexual fantasies. For child molesters, however, only negative affective states and increased masturbation were related. Relationships were also observed between negative affect and deviant sexual fantasy, although this was not accompanied by heightened masturbation.

In a later study examining similar components of the relapse chain, Proulx, McKibben, and Lusignan (1996) generally found that the presence of interpersonal conflict and negative mood coincided with an increased frequency of deviant sexual fantasies and masturbatory activities. More specifically, rapists most frequently reported feelings of anger, loneliness, and humiliation, heterosexual child molesters reported loneliness and humiliation, and homosexual child molesters only reported feelings of loneliness.

Bumby and Hansen (1997) examined the relationship between intimacy deficits, fears of intimacy, and loneliness and various indices of sexual offending in a sample of 60 child
molesters and rapists and 41 nonsexual criminals and community controls. Child molesters evidenced the greatest fears of intimacy while both groups reported lower levels of intimacy in social relationships with male friends, female friends, family members, and overall intimacy than nonsexual offending inmates or community controls. Both child molesters and rapists also reported higher levels of emotional loneliness, social loneliness, and overall loneliness than either comparison group. In regards to risk for recidivism, measures of overall intimacy, fear of intimacy, overall loneliness, and social loneliness were all significantly correlated with the number of previous arrests and convictions in child molesters. For rapists, measures of overall intimacy and emotional loneliness were significantly related to number of previous convictions.

Firestone et al. (1998) found that repeat rapists scored significantly higher on the Negativism subscale of the Buss Durkee Hostility Inventory (BDHI) than non-recidivists. Rapists who re-offended with a new nonsexual violent offense also scored higher on the Assault subscale of the BDHI than those who did not recidivate. Firestone et al (1999) obtained similar results with incest offenders, finding that those who committed new nonsexual violent offenses tended to score higher on the Suspicion factor, and those who committed any new offense also registered higher scores on the Assault, Verbal Aggression, Resentment and total hostility score of the BDHI, than non-recidivists.

In their review of the dynamic antecedents of sex offense recidivism, Hanson & Harris (2000) draw the distinction between stable dynamic and acute dynamic risk factors. While both variables denote the offender’s capacity to change (usually with the advent of treatment), stable dynamic factors are typically longstanding and are expected to show little change over the course of months or years (e.g., antisocial personality, procriminal attitudes).
On the other hand, *acute dynamic factors* are fleeting, rapidly changing offender characteristics that immediately precede offending (e.g., negative affect) (Hanson & Harris, 2000). Hanson and Harris found that some precursive mood states were strong predictors of sexual recidivism, including negative mood ($r = .16$) and anger ($r = .20$). A breakdown by offender type (Hanson & Harris, 1998) revealed that negative mood (e.g., feelings, of loneliness, rejection, depression, anxiety) predicted most strongly for boy-victim child molesters, whereas anger predicted recidivism in this group and in rapists.

Conversely, Ward and Hudson’s (1998) relapse model posits that offenders may also experience positive affect prior to sexually offending, based on the offense-related goals they formulate and whether they are moving in a direction towards meeting them. Many sex offenders do experience negative affect prior to engaging in their offending, for instance, when confronted with the abstinence violation effect (AVE) after lapsing. However, for other offenders with approach-oriented goals and strategies related to offending (i.e., their main goal is to commit a new offense, rather than to abstain from offending), the gradual process of planning, fantasizing, lapsing and ultimately assaulting a victim may evoke positive affective states such as excitement or anticipation (Ward & Hudson, 1998; Ward et al., 1998).

As a risk factor, positive emotionality may bear a more indirect relationship to sex offense recidivism. For example, Brown and Forth (1997) compared a sample of 104 psychopathic and non-psychopathic rapists on several criminal history and demographic variables as well as their emotional states preceding the onset of their previous offending. In total, 57% of the sample reported experiencing at least one negative emotion in the 24 hours preceding their most recent sex offense. Perhaps in keeping with the flat affective style of
the psychopath, significantly more non-psychopaths reported experiencing negative affective states (i.e., anxiety, stress, and alienation) prior to their own offending. Interestingly psychopaths were significantly more likely to report experiencing positive affective states prior to sexually offending, than non-psychopaths (38% versus 17.9% respectively). Possibly in light of its relationship to psychopathy, positive emotionality prior to the onset of offending (or precipitating deviant thoughts and fantasies) may be a risk marker for sexual re-offending.

**D8 Insight.**

This variable refers to a lack of insight into the cause of past sexual offending, illustrated by the denial of responsibility, blaming others or the system, or avoiding discussing details of the offense. A central goal of virtually all rehabilitative programs is to instill insight in the offender-patients regarding the causes of his or her sexual offending (Webster, Douglas, Hart, & Eaves, 1997), and ideally to formulate a relapse prevention plan to mitigate the potential for a relapse. Offenders who are incapable or unwilling to foster insight into the nature of their offending likely present an elevated risk to sexually recidivate. Some empirical support exists to suggest that an offender’s understanding of his or her offense cycle and concordant knowledge and understanding of relapse prevention concepts is predictive of recidivism (Marques, Nelson, West, & Day, 1994). For instance in their evaluation of a long-term treatment project to reduce sex offense recidivism, Marques et al. (1994) found that a patient’s knowledge of relapse prevention concepts and the ability to apply these concepts to their own offending was a highly significant predictor of sex offense recidivism. In this treatment program, patients are evaluated by their primary clinicians on
the quality of their cognitive-behavioral chains (a detailed sequence of events, thoughts, and feelings that lead up to the crime) and decision matrices (a matrix comparing the immediate versus delayed consequences of abstaining versus re-offending). Poorer quality decision matrices were associated with an increased hazard for committing a new sex offense, whereas higher quality efforts were associated with a decreased hazard for sexually re-offending. The patients' cognitive-behavioral chains also had a marked impact on the rate and frequency re-offending; however, the hazard for re-offending as a function of the cognitive-behavioral chain, was especially significant for patients with lower IQ’s (i.e., IQ approximately 90).

**D9 Mental disorder.**

This item assesses the extent to which a severe mental disorder is associated with deviant sexual behavior (e.g., an individual sexually offends while acutely psychotic). The logic behind this variable is that the existence of a mental disorder occurring within the context of previous sexual offending, will serve to further elevate an individual’s risk upon re-experiencing episodes or symptoms of the mental disorder. Although the relationship between certain forms of mental disorder and nonsexual violence has been well documented elsewhere (e.g., Hodgins, 1993; Monahan, 1993; 1997), its relationship to sex offending is less clear. Hanson and Bussière (1998) did find a significant relationship between severe mental illness and future sexual offending \( r = .25 \), although they suspected that the correlation may have been inflated by an early study (Hackett, 1971) in which a sample of exhibitionistic psychiatric patients all eventually recidivated. Hanson and Harris (2000) also found that an exacerbation of psychiatric symptoms (e.g., delusions, hallucinations) prior to
offending bore a significant relationship to sex offense recidivism ($r = .11$). Finally, a study by Weiss (1989) on a sample of 49 Czeckoslovakian sex offenders suggests that some psychometric measures of psychiatric symptomatology may discriminate recidivists from non-recidivists. Non-recidivists had successfully completed treatment and been offense free for three-year follow-up period in the community. This sample was administered a psychometric battery and recidivists were compared to non-recidivists on the various measures. Although null findings were obtained on many of the instruments, on the basic scales of the MMPI, sex offense recidivists were found to have elevated F, Pt, Sc, Ma, and Si scales and lowered K in comparison to non-recidivists.

**D10 Substance abuse.**

This item refers to whether substance abuse or a substance related problem has been clearly linked to sexual offending (e.g., while intoxicated, a rapist may become more sexually aggressive). The relationship between substance abuse and sexual recidivism has received mixed support. On the one hand, several studies have documented a robust association. For example, Hanson and Harris (2000) found substance abuse to be significant predictor of sex offense recidivism both as a stable dynamic ($r = .17$) and acute dynamic ($r = .16$) risk factor. A further breakdown of this variable by offender group yielded a particularly strong relationship in rapists and boy-victim child molesters ($r = .22$ and .26 respectively) (Hanson & Harris, 1998). Firestone et al. (1999) also found that incest offenders who recidivated sexually or with nonsexual violence, attained higher scores on the Michigan Alcohol Screening Test (MAST) than non-recidivists. In addition, Firestone, Bradford, McCoy, Greenberg, Curry, and Larose (1998) found that rapists who committed new violent
or general criminal offenses had higher MAST scores than non-recidivists. Based on their data from the New York sex offender survey, Tracy et al. (1983) suggest that alcohol may constitute an important factor in many sex offenses, but that it does not play a causative role. Sex offenders who committed new sex offenses had a higher incidence of alcohol abuse in their sex offense history than non-recidivists. More specifically, alcohol abuse had been a significant factor in previous sex crimes for 53% of sexual recidivists, 66% of nonsexual recidivists, and 38% of the non-recidivists.

Finally, Becker and Stein (1991) surveyed 160 adolescent sexual offenders in an attempt to elucidate the relationship between the consumption of pornography, the use of drugs and alcohol, past victimization, and the number of victims per offender. A significant relationship was found between the consumption of alcohol and number of previous victims. Youths who reported that alcohol increased their sexual arousal had a significantly greater mean number of victims (3.1) than youths who reported that alcohol had no impact on their sexual arousal (2.0), decreased their arousal (2.1), or who reported not to use alcohol (1.7).

On the converse, other researchers (e.g., Hanson & Bussière, 1998) have found that the link between substance abuse and sexual recidivism to be tenuous at best. For example, Hanson and Bussière's (1998) meta-analysis documented no such relation (mean weighted $r = .03$). Although a robust relationship has been documented between substance abuse and nonsexual violence (e.g., Bonta, Law, & Hanson, 1998; Harris et al., 1993; Murdoch, Pihl, & Ross, 1990; Zamble & Quinsey, 1997), it seems that a significant but minor association exists between substance abuse and sex offense recidivism.
DII. **Acute (critical) stress.**

According to this item, an inability to deal with acutely stressful incidents and/or resolve conflict or discord (e.g., dispute with spouse) has been clearly linked to sexual offending. An inability to cope adaptively to acute or critical stress, such that it leads to sexual offending serves to increase an offender’s risk for sexual recidivism. Contemporary sex offender treatment programs adhering to a relapse prevention (RP) approach, for instance, strive to empower the patient with an arsenal of coping strategies to adaptively manage stress and thus mitigate the potential for a relapse (Pithers, 1990; Marques, 1999). Moreover, contemporary models of the relapse process (e.g., Pithers, 1990; Ward, Hudson, & Keenan, 1998; Ward & Hudson, 1998) incorporate some degree of life stress as a crucial phase in the return to sexually abusive behavior. In this case, acute stress is often a beginning point in the offense chain, which may lead to the formulation of offense-related goals, an entrance into a high risk situation (e.g., babysitting a child, picking up a lone female hitchhiker), culminating in a lapse and eventual relapse (Ward & Hudson, 1998).

The findings of McKibben et al. (1994) and Proulx et al. (1996) provide some indirect empirical support for the link between acute stress and deviant sexual behavior. For instance, although the relationship may be more true for rapists and certain subtypes of child molesters (e.g., girl-victim), these innovative studies documented direct relationships between interpersonal conflict and emotional distress, deviant fantasizing, and increased masturbatory activities while entertaining deviant sexual fantasies. The relationship between acute stress and sex offense recidivism seems to be more indirect, but nevertheless, offenders who lack the capacity to adaptively cope with interpersonal conflict, buffer stress, or manage other significant life events likely present an increased risk for committing a new sex offense.
**D12 Community support.**

A lack of positive community support or refusal to acknowledge its importance in reducing the potential to re-offend, has the potential to elevate an offender’s risk for sexual recidivism. Several variables indicating a lack of community support (e.g., family-marital problems, unemployment) have been linked to violent and general criminal recidivism (Bonta, LaPrairie, & Wallace-Capretta, 1997; Bonta, Hanson, & Law, 1998), and the same also seems to apply to sexual offending. For instance, the relationship between never having been married and sex offense recidivism is well documented (e.g., Rice et al., 1991; Hanson et al., 1993; Hanson & Bussière, 1998). Moreover, Proulx et al. (1997) found that recidivistic child molesters were significantly more likely to have been living alone at the time of their offenses than those who did not re-offend. Among a sample of 86 convicted rapists, Firestone et al. (1998) found that sexual recidivists were significantly more likely to be removed from their family home before the age of 16. In his large-scale behavioral treatment efficacy study, Maletzky (1991) found that sex offenders considered “treatment failures” were four times more likely to have an unstable employment history (71.4%), and roughly four times more likely to have a history of unstable social relationships (47.3%) than “treatment successes.” Finally, Grubin (1999) provides evidence to suggest that sex offenders who are socially and emotionally isolated may be more dangerous than offenders with better support and psychosocial adjustment. For instance, in a sample of 21 homicidal and 121 non-homicidal rapists, men who killed their female victims were significantly more likely to be living alone, be socially isolated, have few sexual relationships, and to not have been part of a childhood peer group in comparison to their non-murdering counterparts.
With respect to both child molesters and rapists, Hanson and Harris (2000) found several variables indicating a paucity of community support and poor social adjustment to be predictive of sexual recidivism including unemployment, global problems with intimacy, general social problems (acute predictor), and negative social influences. Having positive social influences was inversely related to sex offense recidivism ($r = -0.29$). An earlier version of this report (Hanson & Harris, 1998) examined the relationship between individual predictors and sexual recidivism in child molesters and rapists separately. Among rapists, frequent unemployment, negative influences, and intimacy problems were among the strongest predictors, whereas negative social influences and general social problems tended to predict for child molesters (boy-victim molesters only) (Hanson & Harris, 1998). The role of negative social influences, especially sex offending peers may have a particularly virulent impact on risk, given that some research has demonstrated that having child molester associates predicts acts of child molesting ($\beta = .41$), and that knowing other rapists predicts the commission of rape ($\beta = .21$) (Hanson & Scott, 1996).

Some studies have also demonstrated that a paucity of community support may not only increase an offender’s likelihood of relapsing, but that the opposite is also true -- sex offenders who receive adequate community support are less likely to re-offend. For instance, Reiss et al. (1996) found in their Broadmoor sample of young sex offenders, that a good employment record and a stable sexual relationship predicted a favorable outcome following release. Of the 24 offenders who maintained stable employment lasting at least one year, only 13% sexually re-offended; of the 11 offenders who maintained a sexual relationship over one year, none re-offended (sexually or otherwise).
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D13 Released to high risk situations.
This item assesses whether the individual has little insight about his or her own high risk situations (HRS’s) or may request to be released back into them. The individual may not have any relapse plan in place, or any viable means of managing HRS’s or anticipating the problem of a relapse. For instance, Hanson and Harris (2000) have documented the relationship between several relapse-precipitating variables and sex offense recidivism including access to potential victims ($r = .26$), having an uncontrolled release environment ($r = .17$), being frequently unemployed ($r = .10$), being aligned with negative associates ($r = .23$), intimacy problems ($r = .10$), and the offender viewing himself as no risk ($r = .38$). Successful reintegration into the community is contingent on the avoidance and/or successful management of HRS’s (e.g., interpersonal conflict, unemployment, substance abuse, victim access, complacency) (Pithers et al., 1983; 1988; Pithers, 1990). As such, it would stand to reason that the release of an offender back into the very situations that precipitated his or her offending in the past, would serve to elevate his or her risk for committing further sex offenses.

D14 Sexual offending cycle.
There is an obvious sexual offending cycle such that sexual offending is typically linked to identifiable precipitating factors such as situational factors (e.g. job loss), interpersonal factors (e.g. rejection), or personal factors (e.g. boredom, anger). Violent and sexual offenses are often cyclical in nature. For instance, previous offending of one particular type often predicts future offending of the same type. Hanson, Scott, and Steffy (1995) investigated this phenomenon in a sample of 191 child molesters and 137 nonsexual
criminals. In total, 35.1% of the child molesters were reconvicted for a new sex offense versus 1.5% of the nonsexual criminals. Conversely, 32.8% of the nonsexual criminals were reconvicted for a nonsexual violent offense as opposed to 1.0% of the child molesters. Moreover, Hall and Proctor's (1987) work provides evidence of criminal specialization in sex offenders. In general, previous sex offenses committed against an adult were significantly predictive of future offenses against adults, while previous acts of child molestation were associated with future sex offenses against children.

Although the cyclical nature of sexual offending has not been empirically linked to sexual recidivism pre se, models of the relapse process generally tend to advocate a set of recurring cyclical processes in which the individual encounters personally relevant stressful life events, core affect and offense-related schema, deviant thoughts and fantasies, and being immersed into high risk situations and lapses prior to re-offending (Pithers, 1990; Ward & Hudson, 1998). Some recent research suggests that sexual offenders whose offenses have a repetitive, cyclic quality to them are at a heightened risk for repeat offending. Beutler, Hinton, Crago, and Collier (1995) tested the concept of “fixed propensity,” in a sample of 23 recidivistic sex offenders who had committed 62 sex offenses. A detailed assessment of victim characteristics, events leading up to the offense, and the nature of the offense itself was conducted on each offender, and similarity amongst offenses was ascertained through cluster analysis and a Euclidean distance measure. A significant relationship was found between the similarity of an offender’s offenses and his likelihood of committing future offenses. The average distance score for a given offender across all offenses was positively correlated with the total number of sex offenses for that particular offender ($r = .52$); thus
more similar offending patterns (indicated by less distance between offenses) were associated with a greater number of offenses.

**D15 Impulsivity.**

This item assesses whether the individual typically reacts impulsively in a verbal and/or physical manner. Behaviors are often associated with "spur of the moment" occurrences in which the individual reacts without pausing to consider other relevant information before reacting (e.g., negative consequences). Sex offenders who display a marked pattern of impulsivity in various domains of living, have also been found more likely to sexually re-offend than less impulsive offenders (Fisher & Thornton, 1993). For instance, Prentky, Knight, Lee, and Cerces (1995) examined the relationship between their construct of lifestyle impulsivity and various domains of criminal recidivism in a sample of 109 incarcerated rapists released from custody over a period of 25 years. Lifestyle impulsivity refers to a composite measure of several domains of unstable or reckless behavior including, an unstable employment history, reckless behavior without regard for its consequences, recurrent aggressive or destructive behavior, disruptiveness in school or work, and a previous history of fighting. Rapists rating high on this construct were nearly three times (2.83) as likely to be charged for a new sex offense than low-impulsivity rapists. Survival analyses between the two groups also revealed a 24% lower cumulative survival rate for high-impulsivity offenders than low-impulsivity offenders over the study period.

In an earlier study, Prentky and Knight (1986) found that offenders rated high on lifestyle impulsivity registered a greater number of serious adult sexual offenses than low-impulsivity offenders. Finally, Hanson and Harris (2000) also found that sexual recidivists
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had more of a chaotic, antisocial lifestyle than non-recidivists, and were more likely to use their leisure time aimlessly.

D16 Attitudes legitimizing sexual offending.

This item assesses attitudes that the individual clearly espouses to support or condone sexual offending (e.g., sexualization of children, rape myths, sexual entitlement). Some empirical support indicates that sexual offenders are more likely than other offenders to espouse attitudes and beliefs that legitimize their abusive behavior (Abel et al., 1989; Hanson, Gizzarelli, & Scott, 1994; McGrath, Cann, & Konopasky, 1998), and that such maladaptive ways of thinking could further elevate an offender's risk for relapse. In a sample of 210 juvenile offenders, Spacarelli et al., (1997) found that young sex offenders (i.e., arrested and self-report) were more likely to support beliefs that downplayed the harm incurred by sexual abuse to its victims, than were low-violent delinquent youths.

In their investigation of the dynamic antecedents of sexual recidivism, Hanson and Harris (2000) developed a set of internally consistent scales that measured sex offender attitudes that condoned or legitimized sexually abusive behavior. These measures were shown to discriminate recidivists from non-recidivists of various offender types. Overall, each attitudinal measure was predictive of sexual offense recidivism including low remorse or victim blaming \( r = .28 \), child molester attitudes \( r = .19 \), rape attitudes \( r = .19 \), and attitudes of sexual entitlement \( r = .29 \). There was also some degree of concordance with respect to attitude measure and victim type, such that rape attitudes tended to predict most highly for rapists \( r = .32 \) and child molester attitudes tended to predict most highly for child molesters \( r = .36 \), boy-victim molesters; \( r = .18 \), girl-victim molesters) (Hanson & Harris,
1998). Finally, in a sample of 126 charged/convicted sex offenders, Hanson and Scott (1996) found that pro-pedophilic attitudes (as measured by Factor 1 of Abel et al.'s (1989) Cognition Scale) moderately predicted acts of child molestation ($\beta = .16$).

**D17 Compliance with community supervision.**

Consistent noncompliant behavior with respect to community supervision (e.g., rejecting or undermining the directions of community supervision) has also been found to be a strong predictor of sex offense recidivism. For instance, Hanson & Harris (2000) found significant relationships between several elements of poor cooperation with community supervision and sexual recidivism. This variable appeared to be a particularly strong stable dynamic predictor of failure in the community for both rapists and child molesters. In comparison to non-recidivists, sexual recidivists were more likely to be disengaged from community supervision ($r = .30$), to be late or miss appointments ($r = .22$), to attempt to manipulate or deceive the officers ($r = .29$), and to demonstrate poor overall cooperation ($r = .36$). Significant but smaller relationships were also observed between each of these indices of poor supervisory compliance and sex offense recidivism, when it was rated as an acute dynamic factor.

**D18 Treatment compliance**

This item assesses whether the individual has been discharged from one or more previous treatment programs and demonstrated clear treatment non-compliance (e.g., refuses to attend treatment, stubborn to personal change). Some empirical support suggests that sex offenders who fail in treatment (e.g., discharged, drop-out), or who demonstrate a lack of
commitment or compliance to the treatment process, are at an increased risk for sexually re-offending when released. For example, in their meta-analysis, Hanson and Bussière (1998) found a significant relationship between a failure to complete treatment and sexual recidivism \( (r = .17) \) across 6 studies. Hanson and Harris (2000) also found that recidivists tended to be poorer treatment candidates than non-recidivists, being more likely to fail in treatment, drop out, or to lack motivation. In their child molester outpatient study, Abel et al. (1988) found that sexual recidivists were less likely to endorse the goals of treatment than individuals who did not sexually re-offend. Namely, the recidivists were less likely to subscribe to program objectives such as decreasing deviant arousal and increasing age-appropriate sexual arousal, improving assertiveness and communication skills, and strengthening their own social acumen.

A noticeable trend between treatment failure or dropout and subsequent recidivism has also surfaced in some of the treatment efficacy literature. For example, in each of their progress updates of the SOTEP program, Marques and colleagues (1994a; 1994b; 1999) have found that individuals who dropped out of treatment tended to sexually recidivate at higher rates than individuals in the treatment and comparison groups. Now nearing the end of the final follow-up phase of SOTEP, Marques (1999) reports that 17.7% of treatment dropouts have committed a new sex offense, in comparison to 13% of treatment completers, 12.5% of volunteer controls, and 15.1% of non-volunteer controls. Treatment dropouts were also most likely to commit a new violent offense (17.7%). Similarly, Studer and Reddon (1998) compared a sample of 150 treatment completers and 127 treatment dropouts from the Alberta Hospital Phoenix Program in terms of recidivism rates and relevant risk predictors. A trend approaching significance was found as individuals who failed to complete treatment were
more likely to sexually recidivate (9.4%) over an 18-month follow-up period than offenders who had successfully completed treatment (3.9%).

_D19 Deviant sexual preference._

A clear pattern of sexual preferences, including thoughts and fantasies, for deviant sexual stimuli (e.g., children, sex involving violence or humiliation), has been repeatedly proven to be a powerful predictor of sexual recidivism. For instance, Hanson and Bussière (1998) found a deviant sexual preference for children (as assessed through phallometric testing) to be the strongest predictor for sex offense recidivism ($r = .32$) among a multitude of other salient risk factors; however, such a trend was not observed for rapists ($r = .05$). A deviant sexual preference seems to be a more salient factor in child molestation than in rape. For instance, arguably, child molesters sexually assault children in large part because they are sexually aroused by them, and perhaps even prefer sexual contact with them over and above adults. However, it seems only in a minority of cases do rapists sexually assault women because they prefer rape over and above mutually consenting sex (Marshall, 1996). Thus, the relationship between sexual deviance and sex offense recidivism may be one that holds true mainly for child molesters.

Deviant preference indices have been shown to strongly predict sexual recidivism in child molesters (Malcolm, Andrews, & Quinsey, 1993; Proulx, et al., 1997; Rice et al., 1991) and in one study in rapists (Rice et al., 1990). Interestingly, some studies have also found such deviance indices to predict nonsexual violent and general recidivism in some sex offender populations (e.g., Proulx et al., 1997).
Proulx et al. (1997) assessed deviant sexual arousal to a wide range of audiotape descriptions of child-adult sexual contact (e.g., consenting, non-consenting, gratuitous violence). Child molesters who committed new sex offenses registered higher arousal to consenting child-adult sexual activity, than non-recidivists. However, child molesters who recidivated violently showed greater arousal to descriptions of homosexual child-adult contact including stimuli that involved consent, coercion, and violence. Child molesters who committed any new offense also registered more deviant arousal patterns to consenting, coercive, and violent child-adult homosexual activity, as well as consenting and coercive child-adult heterosexual activity.

Malcolm, Andrews, and Quinsey (1993) examined the discriminant and predictive validity of phallometry tested age and gender preference in a sample of 152 incarcerated sex offenders. Offenders were at risk an average of 4.2 years and 14% committed new sex offenses. Sexual recidivists evidenced significantly stronger preferences for child slides and younger age preferences than non-recidivists. Overall, significant correlations were observed between age preference index and sexual recidivism for the entire sample ($r = .34$) and in child molesters exclusively ($r = .67$).

In a sample of 136 extrafamilial child molesters, Rice et al. (1991) found a significant relationship between a phallometry assessed child preference index and sex offense recidivism ($r = -.16$, *a negative sign indicates a deviant profile*). Moreover, in the development of the SORAG, Quinsey et al. (1995) also found that a deviant sexual preference predicted sex offense recidivism ($r = -.21$), among many other predictor variables. These results paralleled the findings from an earlier study by Quinsey, Chaplin, and Earles (1980) of 30 child molesters having received behavioral therapy and discharged into the
community. In total, 20% of the treatment recipients committed new sex offenses against children -- recidivists had significantly more deviant age preference profiles than non-recidivists. Maletzky (1991) found that individuals with high levels of pre-treatment deviant arousal were significantly more likely to be "treatment failures" (i.e., fail to complete treatment successfully or sexually recidivate) than individuals exhibiting normal arousal patterns. Finally, in a progress report of the SOTEP project, Marques et al. (1994) found that child molesters who displayed high levels of arousal to phallometric testing footage involving male children and violence were also more likely to commit a new sex offense upon release.

Some empirical evidence also indicates that the presence of other paraphilias (e.g., exhibitionism, voyeurism, fetishism) can heighten an offender's risk for future sexual offending (Hanson & Bussière, 1998; Hanson & Harris, 2000; Maletzky, 1991; Prentky et al., 1997). This is an important finding, given that past research suggests that sex offenders in treatment usually report having more than one paraphilia (Abel & Rouleau, 1988). In their meta-analysis, Hanson and Bussière (1998) found a strong relationship across 5 studies between the presence of any deviant sexual preference and sexual recidivism ($r = .22$). Similarly, Prentky et al. (1997) found that recidivistic child molesters were significantly more likely to have additional paraphilias than non-recidivists. Among a combined sample of child molesters and rapists, Hanson and Harris (2000) found that sexual recidivists had a significantly greater number of paraphilias than non-recidivists. Finally, Maletzky (1991) found that individuals with multiple paraphilias were approximately five times more likely to fail in treatment, than individuals without (i.e., 22.7% and 4.1% respectively).
In sum, sexual offenders who exhibit a lifestyle compatible with deviant sexual activity, who distort, downplay or legitimize sexually abusive behavior, fail to cope adequately with life stress or emotional duress, or experience entrenched deviant sexual interests or a persistent pattern of offending do seem substantially more likely to commit new sex offenses than offenders without such risk markers. This somewhat lengthy review served to summarize and integrate the body of research documenting the relationship between various dynamic predictors and elevated risk for sexual offense recidivism. The next section attempts to elaborate on the theoretical underpinnings of the VRS:SO through a review of the Psychology of Criminal Conduct (Andrews & Bonta, 1998), Prochaska et al.’s (1992) Transtheoretical Model of Change, and contemporary relapse prevention theory.

1.5 Theoretical Rationale of the VRS:SO

An important defining characteristic of risk-need assessment instruments is the presence of a coherent unifying theory guiding the development of the instrument. The VRS:SO reflects the integration of three theoretical models: the psychology of criminal conduct (PCC), the transtheoretical model of therapeutic change (TTM), and a model of the relapse process.

1.5.1 The Psychology of Criminal Conduct: Contributions to the Development of the VRS:SO

The PCC refers to a theoretical model formulated through the efforts of Don Andrews and James Bonta (1998) concerning the causes, correlates, maintenance, and modification of criminal behavior. The PCC is primarily a social learning model positing that the majority of criminal behavior is learned through an exposure to antisocial role models, experiencing a
greater density of perceived rewards than costs for criminal behavior, and the development of a value and attitude system which legitimizes criminal behavior. It also stresses the role of potential developmental factors such as genetic endowment, temperament, intelligence, familial functioning, delinquent peers and the like. The main contribution of the PCC to the VRS:SO is in the distinction between static and dynamic risk factors, the “Big Four” covariates of criminal behavior, and the need for effective correctional intervention with respect to the principles of risk, need, and responsivity.

According to the PCC, the most important predictors of criminal behavior are the “Big Four” – that is, antisocial personality (e.g., psychopathy), procriminal attitudes, criminal associates or peers, and criminal history. The Big Four have demonstrated strong research support for their predictive capability (Andrews & Bonta, 1998; Bonta et al., 1998; Cottle, Lee, & Heilbrun, 2001; Gendreau et al., 1996). Many of the variables on the VRS:SO are analogous to the Big Four such as cognitive distortions, criminal personality, and community support.

The static-dynamic distinction of the PCC has also been a major contribution. Dynamic risk factors are criminogenic, in the sense that they “crime causing.” Moreover, they are also mutable, usually through some form of intervention. The logic follows that if dynamic factors that are causative of crime are directly targeted through treatment, then there will be a consequent reduction in the offender’s risk. Moreover, in order to actually incur a reduction in an offender’s risk through treatment or to predict criminal outcome, dynamic risk factors do need to be criminogenic in nature. Otherwise, if they do not contribute to individual differences in criminal behavior, there may be little to gain in treating them. Thus, variables that have not been empirically demonstrated to be criminogenic in nature such as
personal distress (e.g., depression, anxiety) and self-esteem (Hanson & Bussière, 1998, Gendreau et al., 1996), were not incorporated into the instrument. Moreover, the item composition of static actuarial risk assessment instruments also reflects the influence of the PCC with its emphasis on criminal history (e.g., prior sex offenses, prior non-sexual violence), and relative neglect of mainstream criminological variables (e.g., ethnicity, SES, gender).

1.5.2 Trans-Theoretical Model of the Change Process

A second major theoretical contribution comes from Procaaska, Diclemente, and Norcross' (1992) trans-theoretical model (TTM) of therapeutic change. The TTM has traditionally been used to conceptualize change in a variety of health-related behaviors such as the cessation of smoking (Fava, Velicer, & Prochaska, 1995), human immunodeficiency virus (HIV) prevention (Prochaska, Redding, Harlow, Rossi, & Velicer, 1994), contraceptive and condom use (Grimley, Prochaska, Velicer, & Prochaska, 1995), exercise adherence, weight control, reducing fat intake, using sunscreen, and cocaine cessation (Prochaska, 1994). However, only recently have any attempts been made to apply the TTM to offender populations.

Although the PCC asserts that addressing criminogenic needs amounts to reductions in recidivism, the TTM provides a framework for monitoring offender progress or failure in addressing these needs. Although the metric applied to quantifying change is partially arbitrary, the TTM enables the clinician to evaluate where the offender stands on each of a variety of criminogenic dimensions prior to receiving treatment. Following the completion of some intervention, the offender's progress in addressing each need can be evaluated in terms
of the number of stages he or she has progressed or regressed. For instance, a need is no longer a need once the offender has reached the Maintenance stage in a particular area (e.g., substance abuse, sexual compulsivity). Through applying the TTM in this manner, the quantity and quality of change that has taken place with respect to the offender’s individual needs can be evaluated, and thus any mitigation or exacerbation in risk to sexually re-offend.

1.5.3 Contributions of Relapse Prevention Theory

A final theoretical contribution to the VRS:SO can be credited to Relapse Prevention (RP) theory (Pithers et al., 1983; Pithers, 1990; Ward & Hudson, 1998). The VRS:SO is ultimately based on a theoretical model of the sex offense relapse process, in particular, that most recently advanced by Tony Ward and his colleagues (Johnston & Ward, 1996; Ward & Hudson, 1996; 1998; Ward et al., 1998). Ward and colleagues’ model of the relapse process represents a welcome revision of Pithers (1990) extremely important and seminal work. In brief, it suggests that the sex offense relapse process involves a series of sequential events and processes leading up to an offense; however, once immersed in this process, the offender is not condemned to re-offending. Under the right circumstances the offender may leave the relapse chain, for instance, through resorting to rehearsed coping strategies (e.g., removal from a high risk situation, contacting their support network).

The relapse process is comprised of nine stages, originating in a life event of some magnitude. This event could be a psychosocial stressor, interpersonal conflict, daily hassle, or fortuitous run-in with a child. In any event, this event triggers a desire in some form for deviant sexual activity (e.g., sex with a child), which is often accompanied by deviant fantasizing and mental rehearsal, as well as engaging attitudes and beliefs that legitimize
sexual deviance. At this point, offense-related goals are established, whether they are approach-oriented (i.e., intention to return to sexual offending) or avoidance-oriented (i.e., refrain from sexually abusive behavior).

Following the establishment of a goal, an offense strategy is selected. In the case of offenders with avoidance goals, these strategies include passively attempting to prevent the return of sexually abusive behavior, or the use of counterproductive strategies to cope with the urges to offend (e.g., abusing substances and indulging in deviant fantasies). In the case of those offenders with approach goals, this may entail the enactment of over-learned behavioral scripts for sexual offending, or the formulation of a carefully crafted and refined plan. Further into the relapse process, the offender enters a high-risk situation, whereby the nature of his goal will in turn determine the valence of his affect. For those attempting to refrain from offending (i.e., passive or active), this phase will produce marked negative affect as it signifies failure to achieve a particular goal. For those who originally intended to return to sexually abusive behavior, this stage marks the achievement of a salient goal and is thus characterized by positive affect. As the offender moves on towards a lapse, he may experience the AVE or problem of immediate gratification (i.e., focusing on immediate consequences of engaging in sexual offending with little regard for the delayed negative consequences of the act). Alternatively, individuals with approach goals would be experiencing increasing positive affect as they move towards relapsing. Ultimately, all avoidance goals are replaced with approach goals as the offender moves toward relapsing (Ward & Hudson, 1998), and eventually commits a new sex offense.

Ultimately, RP theory serves to explain why many of the VRS:SO’s dynamic risk factors would be criminogenic, and thus impact risk. In brief, most sex offenses are the end
Development and Validation of the VRS:SO

product of a complex series of cognitive and behavioral events, often characterized by sloppy decision making, repeated exposure to high risk situations, planning, fantasizing, and ultimately the commission of a sex offense. Many of the variables on the VRS:SO represent different events in the offense chain that culminated in the offender’s prior sexual offenses. In this sense, the presence of many of these variables would serve to indicate that the offender has: 1) benefited little from treatment, if at all; and 2) is immersed in his offense cycle, and is bordering precariously on the verge of a relapse. Variables such as a lack of insight, possessing and actively engaging in cognitive distortions or offense-related attitudes, returning to a high risk situation, abusing substances, lacking community support and the like, all reflect antecedents that in some way may have precipitated the offender’s past offending. To the extent that many of these risk factors remain problematic (e.g., have not been adequately addressed through treatment), the offender may be considered to be entering his crime cycle and be teetering on the verge of relapse.

For instance, a child molester’s sexually deviant lifestyle may have been expressed through courting single or divorced women with young children. He could have arranged such encounters by placing himself in situations to meet women with children (e.g., day care), and perhaps rationalized these meetings by convincing himself that he enjoyed the company of older women or wished to have a family. Being in the presence of potential victims, the offender engages in active sexual fantasy, in which he mentally rehearses seducing and sexually assaulting his would-be victim(s). These fantasies are accompanied by masturbation and become further entrenched. The offender begins to plan periods of time alone with the child and begins an active grooming ritual to build trust prior to offending. At this point, the offender may continue to rationalize his behavior and the accompanying
feelings of arousal and anticipation may activate former child molester attitudes (e.g., children are capable of consenting to sex with adults, it is only sex education, etc.). The offender may experience a series of powerful emotions based on the nature of his offense related goals. For instance, in the case of an offender who is actively attempting to abstain from offending, but may be poorly managing his risk, he may experience the abstinence violation effect upon lapsing while in a high risk situation (e.g., offers the child a back rub). Assailed with an overwhelming sense of failure and convinced that he always will be a sex offender, the individual tells himself that there is no turning back and he completes the sexual assault. Although there are a multitude of potential pathways to the commission of a sexual offense (Ward & Hudson, 1998), when linked in some manner, the presence of such dynamic risk markers may indicate that the offender is bordering on a relapse.

In sum, the VRS:SO was developed through incorporating the Static 99 and dynamic factors empirically, theoretically, and conceptually related to risk for sexual recidivism. Relevant theoretical models include the PCC, TTM, and RP theory. The current investigation sought to examine the psychometric properties of the VRS:SO in a sex offender population.

1.6 Hypotheses

In light of the empirical support attesting to the validity of current sex offense risk assessment instruments (e.g., Hanlon et al., 1999; Hanson, 1997; Hanson & Thornton, 1999; Quinsey et al., 1995), and the risk factors incorporated into the instrument (see above review), the following hypotheses regarding the VRS:SO's psychometric properties are proposed.
1.6.1 Reliability

It is anticipated that the VRS:SO will prove to be a reliable scale demonstrating strong consistency in the measurement of a given sex offender’s propensity for sexual recidivism. As the psychometric properties were built into the instrument so that item content was relatively homogenous yet not redundant, the scale is expected to have high internal consistency -- both with respect to the dynamic portion of the instrument alone, and the combined static-dynamic total. Dynamic variables were selected to overlap with the Static 99 to some degree, and both the static and dynamic components of the instrument are designed to measure similar underlying phenomena. Thus, these dimensions of the scale should correlate quite highly.

1.6.2 Factor Analysis

A stable, parsimonious, and interpretable factor solution, accounting for a substantial proportion of the total variance, is predicted to culminate from efforts at a factor analysis of the pre-treatment dynamic portion of the instrument. These derived factors, in turn, are predicted to correlate significantly with indices of offense history and recidivism.

1.6.3 Postdictive Validity

It is predicted that high and positive correlations will be obtained between the individual scale components of the VRS:SO and sexual offending history (both number of previous sentencing dates, and number of previous sexual convictions), including the Static 99, dynamic, and static-dynamic total. Ideally, VRS:SO pre-treatment dynamic scores will correlate more highly with offense history than post-treatment scores, consistent with the
intended purposes of the instrument. Post-treatment dynamic scores should correlate with post-treatment rather than pre-treatment behavior.

1.6.4 Predictive Validity

It is predicted that high and positive correlations will be observed between the individual scale components and sexual and non-sexual recidivism, including the Static 99, post-treatment dynamic, post-treatment total scores, and derived factor scores. The criterion, sexual recidivism, will be operationally defined in terms of: 1) total sexual reconvictions; 2) total sexual charges and reconvictions; and 3) yes/no (i.e., 1-0), any new sexual charge or reconviction. Higher scores on the Static 99, the dynamic portion, combined static-dynamic total score, and derived factor scores are predicted to be associated with a greater number of sexual reconvictions and an increased probability of a new sexual charge and/or sexual conviction.

Nonsexual recidivism will be defined in terms of total nonsexual reconvictions (i.e., nonsexual violent and nonsexual nonviolent) incurred following release from custody. By virtue of Hanson and Thornton's (1999) findings, the Static 99 is expected to be a strong and significant predictor of nonsexual reconviction. It is uncertain as to how predictive the dynamic or static-dynamic total scores will be.

In keeping with the intended purpose of the instrument, post-treatment dynamic and static-dynamic total scores should be stronger predictors of sexual and nonsexual recidivism, than their respective pre-treatment counterparts. As the pre-treatment components of the instrument are designed to assess past, as opposed to future, behavior, these components would be expected to only be modestly related to recidivism.
2. Method

2.1 Participants

Participants included 321 male federal inmates who had received treatment services (although not necessarily completing treatment) from the Clearwater Sex Offender Treatment Program at the Regional Psychiatric Center (RPC) (Prairies). The majority (96.3%) of participants had at least one index offense (charge or conviction) for a sexual crime they had committed (e.g., sexual assault, sexual interference, buggery, incest, indecent exposure, invitation to sexual touching, indecent assault, etc.). The remaining 3.7% of the participants either had: 1) a previous charge or conviction for a sexual offense, 2) a history of unreported deviant sexual behavior, or 3) had committed a sex offense but received a conviction for a non-sexual violent offense (e.g., murder).

The mean age of the sample was 42.7 years ($SD = 9.3$) at the time of data collection, and 30.5 years ($SD = 9.8$) at the time of their index offenses. Approximately 62.6% of the offenders were Caucasian, 33.6% were Aboriginal, and 2.8% were of "other" ethnic decent (i.e., African, Asian, Filipino). Overall, 49.3% of the sample were single or had never been married, 23.7% had current common-law partners or were legally married, 25.5% were legally separated or divorced and less than 1% were widowed. The average education level attained was 9.6 years ($SD = 2.9$).

No demographic information was available for 3 (approximately 1%) of the cases in the sample at the time of the extended follow-up (around July 2002, see Study 2 for more details), as these individuals had been pardoned and their records were no longer available. However, these individuals' records had been available during the initial data collection during Study 1, thus making it possible to score the instruments included in the study.
2.2 The Clearwater Sex Offender Treatment Program

The Clearwater program is a 48-bed unit that houses and treats federally incarcerated sex offenders. It is a high intensity program catering primarily to the highest risk, highest need, sex offenders. Currently the program is 8-months in duration and follows a cognitive-behavioral approach utilizing the principles of relapse prevention. Treatment is offered in the form of psychoeducational and discussion groups consisting of approximately 8-12 patients. Core program components include disclosure groups, the development and articulation of a personal crime cycle and relapse prevention plan, assertiveness skills, cognitive restructuring, anger management, attitudes and values, victim empathy, family violence education, and relationships.

2.3 Sex Offender Classification

In the current study, sex offenders admitted into the Clearwater program were further classified into four different categories based on the characteristics of their victims. Rapists are defined as having committed a sexual offense against adult victims (usually females) only. From Marshall and Barbaree (1988), a victim is considered an adult if it is a female of at least 14-years of age or a male of at least 16-years of age. Child molesters are defined as having committed a sexual offense against a boy or girl under the ages of 16 and 14 respectively. The main criterion for classifying an offender as a child molester is an absence of secondary sex characteristics (e.g., breasts, pubic hair) in his victims. Mixed offenders are defined as having multiple victim types (e.g., both children and adults) and generally do not discriminate amongst potential victims. Finally, incest offenders have committed sexual
offenses against family members or relatives (e.g., son, daughter, nephew). A victim is considered to be related by family if the relationship is sufficiently close such that marriage would normally be prohibited (Hanson & Thornton, 1999). Using these operational definitions to classify the offenders, the study sample comprised 169 rapists, 56 child molesters, 45 mixed offenders, and 51 incest offenders in total (total N = 321).

2.4 Materials

The VRS:SO was scored on each participant on the basis of information gathered from their institutional treatment files and the Offender Management System (OMS). The VRS:SO interview was not used in the current study, and thus no direct involvement was required on behalf of the study participants. Much criminal justice research from Canada, the United States and United Kingdom is conducted using information drawn from archival sources similar to those cited above. The information available from OMS and the institutional files have the advantages of being readily accessible and very comprehensive. For instance, common data sources include nursing notes recording any contact with the offender, psychological reports, treatment program summaries and performance evaluations, criminal records, social histories, community assessments, collateral reports, results of psychological and psychophysiological (e.g., phallometric) testing, and so forth. While there are no formal quality assurance checks for the information placed onto OMS or institutional files in general, other indirect procedures exist to enhance the fidelity of such information. For instance, psychological reports and nursing reports are usually written, supervised, or signed off by a registered psychologist.
The VRS:SO.

The VRS:SO has retained the basic format, structure, and theoretical rational of the original VRS. Akin to the VRS, it also amalgamates the clinical and actuarial tradition of risk assessment. It is comprised of 10 static (i.e., the Static 99) and 19 dynamic items (see Appendixes A and B). The scoring of the dynamic component is grounded in Prochaska et al.'s (1992) transtheoretical model of change; however, individual items are based in part on relapse prevention theory (Pithers, 1990; Ward & Hudson, 1998) and the psychology of criminal conduct (PCC) model (Andrews & Bonta, 1998).

2.5 Procedure

2.5.1 Data Coding

The VRS:SO's were scored by two trained research assistants, both of whom had experience in coding institutional files and had been trained in scoring the VRS. Offense history, recidivism, and sentencing data were collected from the participants' Canadian Police Information Center (CPIC) criminal records by the principle investigator as recently as June 18, 2000.

Offense History Coding.

Offense history was recorded in terms of three historical criteria: 1) Total convictions for sexual offenses committed prior to the index offense. Individual counts for offenses were not included, only the conviction itself; 2) Total prior sexual offending events — this includes the sum total of all the individual counts received for each prior sexual conviction; and 3) Total nonsexual convictions (violent and nonviolent) received prior to the index sentencing.
date. Offenses were coded as being either sexual or nonsexual in nature following the guidelines of a coding protocol established by Drs. Stephen Wong and Terry Nicholaichuk.

Recidivism Coding.

Recidivism was operationally defined as the commission of any new indictable offense, following participation in the Clearwater program and eventual release into the community. The offender may not have necessarily received a conviction or a period of incarceration for his offending behavior; in some cases, an arrest or charge for any new sex crime will suffice. Four separate outcome measures of recidivism were employed for analysis: 1) Total new sexual reconvictions: total new convictions received for a sex offense following release; 2) Total new sexual charges or reconvictions: total new charges in addition to official convictions for sex offenses; 3) Yes/no any new sexual charge or reconviction: a dichotomous variable coded 1 for "yes" and 0 for "no" to any new charge or conviction for a sexual offense; and 4) Total new nonsexual reconvictions: total new convictions received for nonsexual offenses (both violent and nonviolent). Charges were coded in addition to convictions for sex offenses in order to provide a more accurate, and less conservative, estimate of the base rate of sexual recidivism (e.g., Doren, 1998; Prentky et al., 1997).

Sentence length coding

Sentencing length was recorded originally in days and converted to years for the index and recidivist sentences. Although periods of probation were recorded, only the time to be spent in incarceration would be considered for any potential analyses. Moreover, in the case of offenders who were legally declared dangerous offenders (DO's) and thus received
indeterminate sentences upon reconviction for their first sex offenses, they were assigned estimated sentence lengths of 25 years (based on the minimum eligibility for parole for first degree murder). For the purposes of this study, the index offense was the offender's most recent sex offense and the recidivist offense was the first sex offense resulting in reconviction after discharge from the Clearwater program.

2.5.2 Psychometric Analyses

Following data collection, a series of psychometric analyses were conducted in order to examine various indices of the scale's validity and reliability. The following analyses were planned: 1) Descriptive statistics (e.g., means and standard deviations); 2) Internal consistency reliability (Chronbach's alpha) on the entire scale; 3) Comparisons between the pre- and post-treatment scores on the VRS to assess the magnitude of offender change over the course of treatment; 4) Postdictive and predictive validity with respect to sexual and nonsexual violent recidivism; and 5) Factor analysis of the entire scale to identify underlying latent constructs measuring dimensions of sex offense risk.

Reliability.

Scale reliability was examined using internal consistency measures (Chronbach's alpha). Reliability estimates were conducted on: 1) The Static 99; 2) Pre- and post-treatment dynamic components of the instrument; and 3) Aggregate pre- and post-treatment static-dynamic total score. A series of item analyses were also performed including inter-item correlations, item-total correlations, and the scale alpha if a particular item is deleted.
The current study did not directly investigate inter-rater reliability on this patient sample, although an investigation by Wong, Flahr, Maire, Wilde, Gu, and Wong (2000) provides some evidence for the inter-rater reliability of the VRS:SO on a different patient sample. The static and dynamic factors were rated on 35 inmates attending the Clearwater program on the basis of file and interview information. Wong et al. found that the reliability of the dynamic factors fluctuated dramatically based on the quality and credibility of the information available. For instance, higher reliability in dynamic factor ratings (approximate \( r = .82 \)) was found among inmates who had completed a substantial component (approximately half) of the program, whereas poor reliability was obtained from ratings on men who were recently admitted to the program (approximate \( r = .35 \)). Wong et al. concluded that experienced program participants provided a greater volume of accurate information than the new recruits, tending to be less defensive and more willing to discuss the sensitive and personal details of their sexual crimes.

**Offender change.**

The magnitude of offender change was ascertained through examining difference scores between the pre- and post-treatment dynamic assessments of risk. Pre- and post-treatment scores will be examined to determine whether: 1) A significant amount of change has occurred in offender risk as a function of treatment; and 2) To assess whether magnitude of change can predict sex offense recidivism. Ideally a significant inverse relationship would be observed between change scores (i.e., pre-treatment total minus post-treatment total) and recidivism.
Postdictive validity.

Postdictive validity refers to the capacity of an instrument to provide a valid measurement of past phenomena. The rationale behind this index of validity is simply that an instrument must be able to provide a valid measurement of the past behavioral phenomena of interest if it is to be able to predict future phenomena. If a scale does not correlate strongly with past behavior, it is unlikely that it will be able to predict future behavior. As such, each component of the scale was correlated with sexual offense history and nonsexual violent offense history in order to appraise the instrument’s postdictive validity. In particular, the Static 99, Dynamic component, Total score, and factors scores were correlated with two indices of previous offending: 1) Number of previous sexual offending events (i.e., individual counts); and 2) Number of previous sexual and nonsexual convictions.

Predictive Validity

The major intended purpose of the instrument was examined through investigating its predictive validity with respect to sexual and nonsexual recidivism. The predictive validity of the instrument validity was investigated through two methods. First, Pearson product moment correlations (i.e., \( r \)) were calculated between different components of the scale and recidivism including: 1) The Static 99; 2) Dynamic component; 3) Total score; and 4) Derived factor scores. Secondly, predictive validity was also assessed through Receiver Operator Characteristic (ROC) analyses over the total follow-up period. The Area Under the Curve (AUC or ROC value) will be calculated as a means of evaluating the VRS:SO’s predictive accuracy. These AUC values would be interpreted as the probability that a randomly selected recidivist obtained a higher score on the VRS:SO than a randomly
selected non-recidivist. Ideally the AUC's will significantly exceed .50, indicating above chance-level prediction.

The predictive validity estimates will be based on a retrospective design, in which case offenders have already been released from custody and have been residing in the community for varying lengths of time. Their institutional files containing information up until the time of their release will be the basis from which the instrument is scored, and its predictive validity will be evaluated.

*Factor Analysis*

The factor analysis involved a principle components extraction with varimax rotation to obtain a rough estimate of the number of possible factors with eigenvalues over 1 comprising the instrument. Based on the pattern of factor loadings and the scree plot, a smaller number of factors will be extracted using principle axis factoring and rotated using varimax and direct oblimin rotations. Both orthogonal and oblique rotations will be used as it is unknown whether the factors extracted will be independent from, or correlated with, each other. The final factor solution will be determined based on the following: 1) results of the scree test; 2) examination of the pattern of factor loadings (optimally with few or no cross loadings); 3) interpretability; 4) internal consistency of the factors; 5) visual inspection of the residual correlation matrix (small residuals should be observed); 6) magnitude of factor correlations (observed in factor correlation matrix); and 7) total variance accounted for by the final solution.
3. Results

3.1 Descriptive Statistics

Means and standard deviations are presented in Table 3.1 for the Static 99, pre- and post-treatment dynamic factor scores, and pre- and post-treatment VRS:SO totals. Each component of the instrument is further subdivided by group. In keeping with Hanson and Thronton’s (1999) classification of risk by Static 99 score, with a mean of 4.39, the sample as whole would be evaluated as medium-high risk. This is also consistent with the Clearwater program’s mandate for treating medium and higher risk-needs patients.

To compare sex offender subtypes on each scale component and the aggregate measure, a series of one-way ANOVA’s was conducted on the Static 99, pre- and post treatment dynamic, and pre- and post-treatment aggregate scale totals as dependent measures with Tukey beta post-hoc multiple comparisons. The differences between offender groups on each of the scale components are summarized in Table 3.1. Overall, the incest offenders appeared to present as the lowest risk, scoring significantly lower than each sex offender group on the Static 99. On the converse, the mixed offenders and child molesters appeared to present as the highest risk, rating significantly higher than rapists and incest offenders on the pre- and post-treatment dynamic and aggregate scale totals.

3.2 Base Rates of Recidivism

The sample was followed up 8.12 years on average ($SD = 4.0$), ranging from .19 to 16.9 years. Recidivism base rates also changed when the criterion definition changed (see Table 3.2). When sexual recidivism was defined as an official conviction for a new sex offense following release, 19.6% of the sample sexually re-offended.
Table 3.1

**VRS:SO Scale Components: Means and Standard Deviations**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Rapists (N = 169)</th>
<th>Child Molesters (N = 56)</th>
<th>Mixed Offenders (N = 45)</th>
<th>Incest Offenders (N = 51)</th>
<th>Total Sample (N = 321)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static 99</td>
<td>4.66 (1.67)?</td>
<td>4.75 (1.96)?</td>
<td>5.51 (2.02)</td>
<td>2.13 (1.62)?</td>
<td>4.39 (2.03)</td>
</tr>
<tr>
<td>Pre-txt Dynamic</td>
<td>25.37 (7.38)?</td>
<td>29.08 (8.97)</td>
<td>30.04 (8.89)</td>
<td>23.6 (5.83)?</td>
<td>26.39 (7.98)</td>
</tr>
<tr>
<td>Post-txt Dynamic</td>
<td>22.49 (7.26)?</td>
<td>26.02 (8.40)</td>
<td>27.03 (8.84)</td>
<td>21.28 (6.22)?</td>
<td>23.55 (7.79)</td>
</tr>
<tr>
<td>Pre-txt Total</td>
<td>30.02 (7.96)?</td>
<td>33.82 (9.98)</td>
<td>35.55 (9.67)</td>
<td>25.73 (6.56)?</td>
<td>30.78 (8.90)</td>
</tr>
<tr>
<td>Post-txt Total</td>
<td>27.14 (7.84)?</td>
<td>30.81 (9.32)?</td>
<td>32.54 (9.60)</td>
<td>23.42 (6.91)?</td>
<td>27.94 (8.68)</td>
</tr>
</tbody>
</table>

*a = designated group lower than mixed offenders at p < .05
*b = designated group lower than child molesters at p < .05
*c = designated group lower than rapists at p < .05

All multiple comparisons conducted post hoc using Tukey B.

Table 3.2

**Base Rates (%) of Sexual and Nonsexual Offense Recidivism by Offender Category**

<table>
<thead>
<tr>
<th>Recidivism Criterion</th>
<th>Rapists (N = 169)</th>
<th>Child Molesters (N = 56)</th>
<th>Mixed Offenders (N = 45)</th>
<th>Incest Offenders (N = 51)</th>
<th>Total Sample (N = 321)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Sexual Reconviction</td>
<td>18.3</td>
<td>28.6</td>
<td>31.1</td>
<td>3.9</td>
<td>19.6</td>
</tr>
<tr>
<td>New Sexual Charge or Reconviction</td>
<td>25.4</td>
<td>32.1</td>
<td>33.3</td>
<td>5.9</td>
<td>24.6</td>
</tr>
<tr>
<td>New Nonsexual Reconviction</td>
<td>69.8</td>
<td>30.4</td>
<td>60.0</td>
<td>27.5</td>
<td>54.8</td>
</tr>
</tbody>
</table>
However, when sexual recidivism was defined as any new charge or conviction for a sex offense, the figure increased to 24.6% of the entire sample sexually recidivating. The difference in recidivism base rates using charge versus official reconviction was significant ($t (319) = -4.10, p < .001$). Finally, when broken down by group, 27.8% of the rapists, 26.9% of the child molesters, 27.1% of the mixed offenders, and 2.7% of the incest offenders received a new charge or conviction for a sex offense.

3.3 Reliability Analyses

The reliability of the VRS:SO and its individual components were examined through internal consistency analyses using Chronbach's alpha. Despite being proven to be a strong predictor of sex offense recidivism, the Static 99 evidenced relatively poor internal consistency ($\alpha = .41$). The dynamic factors (pre-treatment) evidenced greater internal consistency ($\alpha = .79$), with the aggregate pre-treatment total (static and dynamic) demonstrating the greatest internal consistency ($\alpha = .80$).

3.4 Item Total Correlations

Individual item-total correlations were calculated and examined as another means of evaluating the psychometric properties of the VRS:SO (see Table 3.3). The reader will notice upon inspection of Table 3.3, that the majority (15/19) of the dynamic risk items correlate between $r = .30$ and $.60$ with the entire scale, indicating that they are measuring a similar underlying construct as the rest of the scale (i.e., sexual offense risk). However, four of the items correlated at $r = .11$ or less with the remainder of the scale, suggesting these items are possibly measuring a construct different from the remaining items. Furthermore, three of
Table 3.3

*Item-Total Correlations for Dynamic Factors*

<table>
<thead>
<tr>
<th>Item</th>
<th>Item-Total Correlation</th>
<th>Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 Sexually Deviant Lifestyle</td>
<td>.57</td>
<td>.77</td>
</tr>
<tr>
<td>D2 Sexual Compulsivity</td>
<td>.52</td>
<td>.77</td>
</tr>
<tr>
<td>D3 Offense Planning</td>
<td>.34</td>
<td>.78</td>
</tr>
<tr>
<td>D4 Criminal Personality</td>
<td>.50</td>
<td>.77</td>
</tr>
<tr>
<td>D5 Cognitive Distortion</td>
<td>.37</td>
<td>.78</td>
</tr>
<tr>
<td>D6 Interpersonal Aggression</td>
<td>.37</td>
<td>.78</td>
</tr>
<tr>
<td>D7 Affective State Associated with Sexual Offending</td>
<td>.12</td>
<td>.80</td>
</tr>
<tr>
<td>D8 Insight</td>
<td>.38</td>
<td>.78</td>
</tr>
<tr>
<td>D9 Mental Disorder</td>
<td>.04</td>
<td>.79</td>
</tr>
<tr>
<td>D10 Substance Abuse</td>
<td>.10</td>
<td>.80</td>
</tr>
<tr>
<td>D11 Acute (Critical) Stress</td>
<td>-.05</td>
<td>.81</td>
</tr>
<tr>
<td>D12 Community Support</td>
<td>.48</td>
<td>.78</td>
</tr>
<tr>
<td>D13 Released to High Risk Situations</td>
<td>.58</td>
<td>.77</td>
</tr>
<tr>
<td>D14 Sexual Offending Cycle</td>
<td>.51</td>
<td>.77</td>
</tr>
<tr>
<td>D15 Impulsivity</td>
<td>.38</td>
<td>.78</td>
</tr>
<tr>
<td>D16 Attitudes Legitimizing Sexual Offending</td>
<td>.42</td>
<td>.78</td>
</tr>
<tr>
<td>D17 Compliance with Community Supervision</td>
<td>.45</td>
<td>.78</td>
</tr>
<tr>
<td>D18 Treatment Compliance</td>
<td>.37</td>
<td>.78</td>
</tr>
<tr>
<td>D19 Deviant sexual Preference</td>
<td>.49</td>
<td>.77</td>
</tr>
</tbody>
</table>
these items did not load during the factor analysis, which calls their value into further question. However, as the overall internal consistency of the scale would not be appreciably impacted from the removal of these items, they were retained and included in the remaining analyses.

3.5 Factor Analysis

An exploratory factor analysis was conducted on the pre-treatment dynamic factors of the instrument with the intent of identifying latent constructs measuring sexual offense risk. The 321 cases were initially subjected to a principle components analysis (PCA) with varimax rotation to arrive at an initial estimate of the number of components comprising the instrument. The PCA resulted in five components extracted with eigenvalues over one. Subsequent analyses were run using principle axis factoring to extract successively fewer factors (4 to 2) and rotating the solution with both varimax and direct oblimin rotation. An examination of the scree plot and pattern of factor loadings suggested that a two or three factor model provided the best potential fit to the data (see Figure 3.1).

Converging lines of evidence suggested that an orthogonal three-factor model provided the most interpretable and parsimonious solution for the following reasons. First, the scree plot indicated that the cleanest break occurred between the third and fourth factor, suggesting a possible three-factor solution. Secondly, this procedure yielded a model with simple structure such that each variable loaded above the .40 cutoff criterion on its respective factor, with no cross-loadings. Finally, each factor was internally consistent, indicating that the variables loading on their respective factors “hung” together tightly. Their alpha coefficients were as follows: Sexual Deviance ($\alpha = .86$), Criminality ($\alpha = .77$), and
Figure 3.1

_VRS:SO Pre-treatment Dynamic Factors Scree Plot_
Table 3.4

*Factor Loading Matrix for VRS:SO Dynamic Items*

<table>
<thead>
<tr>
<th></th>
<th>Sexual Deviance Factor 1</th>
<th>Criminality Factor 2</th>
<th>Treatment Compliance Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 Sexually Deviant Lifestyle</td>
<td>.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D14 Sexual Offending Cycle</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D19 Deviant Sexual Preference</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D3 Offense Planning</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2 Sexual Compulsivity</td>
<td>.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6 Interpersonal Aggression</td>
<td></td>
<td>.76</td>
<td></td>
</tr>
<tr>
<td>D15 Impulsivity</td>
<td>.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D4 Criminal Personality</td>
<td>.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D17 Compliance with</td>
<td>.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Supervision</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D10 Substance Abuse</td>
<td>.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D13 Released to High Risk</td>
<td>.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D12 Community Support</td>
<td>.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D16 Attitudes Legitimizing Sexual Offending</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D9 Mental Disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D8 Insight</td>
<td></td>
<td></td>
<td>.61</td>
</tr>
<tr>
<td>D5 Cognitive Distortions</td>
<td>.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D18 Treatment Compliance</td>
<td></td>
<td>.47</td>
<td></td>
</tr>
<tr>
<td>D7 Affective Condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D11 Acute (Critical) Stress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>3.32</td>
<td>2.77</td>
<td>1.55</td>
</tr>
<tr>
<td>% Variance Accounted for</td>
<td>17.45</td>
<td>14.56</td>
<td>8.20</td>
</tr>
<tr>
<td>Chronbach’s α</td>
<td>.86</td>
<td>.77</td>
<td>.64</td>
</tr>
</tbody>
</table>
Treatment Compliance ($\alpha = .64$).

The three factors accounted for 40.2% of the total variance (see Table 3.4). The first factor was labeled Sexual Deviance (eigenvalue = 3.32; 17.45% of total variance) with the items Sexually Deviant Lifestyle (AD1), Sexual Compulsivity (AD2), Offense Planning (AD3), Sexual Offending Cycle (AD14), and Deviant Sexual Preference (AD19) loading most highly. The second factor was labeled Criminality (eigenvalue = 2.77; 14.56% of total variance), with the items Criminal Personality (AD4), Interpersonal Aggression (AD6), Substance Abuse (AD10), Community Support (AD12), Released to High Risk Situations (AD13), Impulsivity (AD15), and Compliance with Community Supervision (AD17) loading most highly. Finally, the third factor was labeled Treatment Responsiveness (eigenvalue = 1.55; 8.2% of total variance), with the items Cognitive Distortions (AD5), Insight (AD8), and Treatment Compliance (AD18) loading most highly. Items which failed to load above the .40 cutoff criterion included Affective State Associated with Sexual Offending (AD7), Mental Disorder (AD9) Acute (Critical) Stress (AD11), and Attitudes Legitimizing Sexual Offending (AD16). To avoid potential confusion around terminology, the following terms are used in further discussion and analysis. "Static" and "dynamic" factors refer to the items or variables on the VRS:SO; however, the term "aggregate dynamic factors" will refer to the above factors derived through factor analysis.

3.6 Concurrent Validity

Concurrent validity refers to the extent to which two independent instruments agree in the measurement of some underlying construct or quality (Murphy & Davidshofer, 1994). The pre- and post-treatment dynamic portions were correlated with the Static 99 as a cursory
means of evaluating its concurrent validity with respect to sexual offense recidivism. Both pre-treatment dynamic \((r = .35, p < .001)\) and post-treatment dynamic \((r = .33, p < .001)\) portion of the instrument correlated significantly with Static 99 total.

### 3.7 Postdictive Validity: Correlations with History

In order for an instrument to predict future behavioral phenomena, an important requirement is that it provides a valid measure of salient historical phenomena. In other words, an instrument must be able to accurately portray the past, if it is to predict the future. In this respect, the postdictive validity of the VRS:SO was evaluated through correlating the individual scale components and composite factors with sex and non-sex offense history.

With respect to offense history, each scale component was a significant postdictor of previous sexual offending (see Table 3.5). Two historical criteria were used to measure offending history: 1) number of prior convictions for sex offenses, and 2) number of previous sexual offending events. In terms of prior sexual convictions, the Static 99 was the strongest postdictor although all dynamic VRS:SO measures were highly and significantly correlated with this historical measure. In terms of total previous sexual offending events, the same trends were observed for each scale component with the Static 99 holding the strongest relationship followed by the dynamic VRS:SO scale components.

These trends are to be expected in light of the fact that the Static 99 is comprised almost entirely of historical variables, and is weighted most heavily in terms of sexual offending history. Also of noteworthy mention is the fact that the dynamic factors correlated in the expected directions with offense history, as the pre-treatment component correlated more highly with sexual offending history than the post-treatment component.
### Table 3.5

**Postdictive Validity: Correlations Between VRS:SO Scale Components and Offense History**

<table>
<thead>
<tr>
<th></th>
<th>Total Prior Sexual Convictions</th>
<th>Total Prior Sexual Offending Events</th>
<th>Total Prior Nonsexual Convictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static 99</td>
<td>.59</td>
<td>.38</td>
<td>.28</td>
</tr>
<tr>
<td>Pre-treatment Dynamic</td>
<td>.30</td>
<td>.26</td>
<td>.15</td>
</tr>
<tr>
<td>Post-treatment Dynamic</td>
<td>.26</td>
<td>.24</td>
<td>.15</td>
</tr>
<tr>
<td>Pre-treatment Total</td>
<td>.41</td>
<td>.32</td>
<td>.20</td>
</tr>
<tr>
<td>Post-treatment Total</td>
<td>.37</td>
<td>.30</td>
<td>.20</td>
</tr>
<tr>
<td>Sexual Deviance</td>
<td>.46</td>
<td>.41</td>
<td>-.11 ( ^{NS} )</td>
</tr>
<tr>
<td>Criminality</td>
<td>-.05 ( ^{NS} )</td>
<td>.06 ( ^{NS} )</td>
<td>.39</td>
</tr>
<tr>
<td>Treatment Compliance</td>
<td>.16</td>
<td>.17</td>
<td>.09 ( ^{NS} )</td>
</tr>
</tbody>
</table>

\( N = 321 \)

Note: All correlations significant at the .01 level except those marked \(^{NS}\) (not significant)
3.8 Predictive Validity: Correlations with Outcome

3.8.1 Predictive validity of individual scale components.

The capacity of the VRS:SO to predict sexual re-offending following release was examined through correlating the aggregate scale and its individual components with various measures of outcome. Four different measures of recidivism were employed for this purpose: total number of sexual reconvictions, total number of sexual charges and reconvictions, yes/no any sexual charge or reconviction, and total nonsexual reconvictions. Table 3.6 presents a complete summary of predictive validity findings.

The Static 99 was found to significantly predict all measures of sex offense recidivism. The pre-treatment dynamic factor total was also a significant predictor of all sexual recidivism measures, although it failed to predict nonsexual recidivism. A similar trend was also observed for the post-treatment dynamic factor scores, with significant relationships being obtained with respect to all sexual recidivism outcome measures and a marginally higher relationship with respect to non-sexual recidivism. Aggregate pre-treatment scores on the instrument tended to outpredict pre-treatment dynamic scores and the Static 99 alone, and were significantly correlated with each sexual recidivism outcome measure. Finally, post-treatment total scores maintained the same trend as the post-treatment dynamic, significantly predicting all sexual and non-sexual recidivism criteria.

3.8.2 Predictive validity of derived factors

Next, the predictive validity of the three dynamic factors obtained from the factor analysis was examined through correlating factor scores with the outcome measures outlined above. Sexual Deviance was found to be a significant predictor of most sexual recidivism
### Table 3.6

**Predictive Validity Correlations: VRS:SO Scale Components and Outcome**

<table>
<thead>
<tr>
<th></th>
<th>Total Sexual Reconvictions</th>
<th>Total Sexual Charges and Reconvictions</th>
<th>Yes/No Sexual Charge/Reconviction</th>
<th>Total Nonsexual Reconvictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static 99</td>
<td>.25**</td>
<td>.23**</td>
<td>.17**</td>
<td>.14**</td>
</tr>
<tr>
<td>Pre-Txt Dynamic</td>
<td>.17**</td>
<td>.20**</td>
<td>.18**</td>
<td>.09</td>
</tr>
<tr>
<td>Post-Txt Dynamic</td>
<td>.21**</td>
<td>.25**</td>
<td>.23**</td>
<td>.12*</td>
</tr>
<tr>
<td>Pre-Txt Total</td>
<td>.21**</td>
<td>.23**</td>
<td>.20**</td>
<td>.11</td>
</tr>
<tr>
<td>Post-Txt Total</td>
<td>.25**</td>
<td>.28**</td>
<td>.25**</td>
<td>.14*</td>
</tr>
<tr>
<td>Sexual Deviance (pre) (F1)</td>
<td>.16**</td>
<td>.18**</td>
<td>.11</td>
<td>-.14*</td>
</tr>
<tr>
<td>Criminality (pre) (F2)</td>
<td>.12*</td>
<td>.13*</td>
<td>.19**</td>
<td>.25**</td>
</tr>
<tr>
<td>Treatment Compliance (pre) (F3)</td>
<td>.10</td>
<td>.14*</td>
<td>.13*</td>
<td>.14*</td>
</tr>
</tbody>
</table>

*N = 321
Note: * p < .05, ** p < .01
criteria, and inversely related to nonsexual recidivism. Somewhat surprisingly Sexual Deviance was not predictive of sexual recidivism using the yes/no criterion, appearing to be a better predictor of the density of offending (i.e., number of new victims). Criminality was also found to be a modest yet consistent predictor of sexual recidivism with respect to all outcome measures and was a particularly strong predictor of nonsexual recidivism. Finally, the Treatment Compliance factor predicted most sexual and nonsexual recidivism measures.

3.8.3 Predictive validity of individual dynamic risk factors

The individual pre-treatment dynamic risk factors were correlated with two different outcome measures (total sexual charges and reconvictions; yes/no any sexual charge or reconviction) to empirically examine their relationship to risk (see Table 3.7). All but five dynamic variables had significant relationships to one or both measures of sexual recidivism, including Sexual Compulsivity, Cognitive Distortions, Mental Disorder, Acute Stress, and Community Support. Particularly consistent predictors (i.e., predicting both criterion variables) included Sexually Deviant Lifestyle, Affective State Associated with Sexual Offending, Released to High Risk Situations, and Compliance with Community Supervision.

A point is worth mentioning regarding the directionality of the wording of some items. For some items, the wording may be positive, however, all items are scored on their negative poles. For instance, Insight actually measures a lack of insight, Treatment Compliance measures poor treatment compliance, Community Support measures a lack of adequate community support and so on. As such, higher scores on each item (2 or 3) indicate increasing risk for sexual recidivism and positive correlations with outcome would indicate that the negative pole of each risk factor is associated with sexual recidivism.
Table 3.7

Validity Correlations of Individual Pre-treatment Dynamic Risk Factors with Respect to Outcome.

<table>
<thead>
<tr>
<th>Dynamic Factor</th>
<th>Total Sexual Charges and Reconvictions</th>
<th>Any Sexual Charge or Reconviction</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 Sexually Deviant Lifestyle</td>
<td>.12*</td>
<td>.18**</td>
</tr>
<tr>
<td>D2 Sexual Compulsivity</td>
<td>.07</td>
<td>.05</td>
</tr>
<tr>
<td>D3 Offense Planning</td>
<td>.07</td>
<td>.18**</td>
</tr>
<tr>
<td>D4 Criminal Personality</td>
<td>.13*</td>
<td>.09</td>
</tr>
<tr>
<td>D5 Cognitive Distortions</td>
<td>.04</td>
<td>.10</td>
</tr>
<tr>
<td>D6 Interpersonal Aggression</td>
<td>.14*</td>
<td>.02</td>
</tr>
<tr>
<td>D7 Affective Condition Associated with Sexual Offending</td>
<td>.16**</td>
<td>.15**</td>
</tr>
<tr>
<td>D8 Insight</td>
<td>.16**</td>
<td>.17**</td>
</tr>
<tr>
<td>D9 Mental Disorder</td>
<td>-.04</td>
<td>.00</td>
</tr>
<tr>
<td>D10 Substance Abuse</td>
<td>.13*</td>
<td>.07</td>
</tr>
<tr>
<td>D11 Acute Stress</td>
<td>-.02</td>
<td>.04</td>
</tr>
<tr>
<td>D12 Community Support</td>
<td>.05</td>
<td>.07</td>
</tr>
<tr>
<td>D13 Released to High Risk Situations</td>
<td>.13*</td>
<td>.14*</td>
</tr>
<tr>
<td>D14 Sexual Offending Cycle</td>
<td>.09</td>
<td>.16**</td>
</tr>
<tr>
<td>D15 Impulsivity</td>
<td>.16**</td>
<td>.10</td>
</tr>
<tr>
<td>D16 Attitudes Legitimizing Sexual Offending</td>
<td>.14*</td>
<td>.08</td>
</tr>
<tr>
<td>D17 Compliance with Community Supervision</td>
<td>.13*</td>
<td>.15**</td>
</tr>
<tr>
<td>D18 Treatment Compliance</td>
<td>.12*</td>
<td>.06</td>
</tr>
<tr>
<td>D19 Deviant Sexual Preference</td>
<td>.06</td>
<td>.17**</td>
</tr>
</tbody>
</table>

Note: * p < .05, ** p < .01
3.8.4 Receiver operating characteristic (ROC) analyses.

As another means of evaluating the predictive accuracy of the VRS:SO, a Receiver Operating Characteristic (ROC) analysis was conducted on the follow-up data. Originally drawn from the field of signal detection, ROC analysis involves comparing the ratio of "hits" (i.e., true positives) to false alarms (i.e., false positives) across different decision thresholds of the instrument (Mossman, 1994). This ratio is computed at different score cutoffs, and the points are connected to produce a curve. The predictive accuracy of the instrument can be further ascertained by examining the total "area under the curve" (AUC). The AUC can range between values of 0 and 1.0, with values of .50 indicating chance-level prediction. Any value beyond an AUC of .50 represents an improvement over chance – the closer the value is to 1.0, the greater the instrument's predictive accuracy.

For the purposes of this analysis, three decision thresholds were derived: low risk (19), medium-low (29), and medium-high (39). The decisions were purely dichotomous in nature. Individuals in the sample were classified as either being a recidivist or non-recidivist in simple yes/no (1/0) fashion, based on whether they received a new charge or conviction for a sex offense following their release. Using this procedure, a curve was ultimately fitted to the data. Overall, an AUC of .65 was obtained (see Figure 3.2). One means of interpreting this figure would be to estimate there being a 65% probability that a randomly selected sexual recidivist would receive a more deviant score on the VRS:SO, than a randomly selected non-recidivist.
Figure 3.2

ROC Curve for VRS:SO Total Score for the Prediction of Sexual Recidivism

ROC of VRS:SO
(AUC=0.65)
3.9 Multiple Regression Analyses and Partial Correlations

Although significant zero-order correlations were obtained for the individual scale components with respect to outcome, these relationships do not control for Static 99 score and thus the potential contribution made by static factors. As a means of assessing the unique relationship between the dynamic components of the scale and outcome, controlling for Static 99 score, multiple regression analyses were conducted and partial correlations were computed. This is in light of the high correlation between the static and dynamic factor components of the instrument, as well as the Static 99's robust relationship with sexual recidivism. As such, this may indicate some overlapping variance between the two measures that may make some potential contributions in observed variance in sexual recidivism.

3.9.1 Multiple regression: Dynamic contributions to outcome.

Standard multiple regression was used to examine the unique contribution made by dynamic factor scores to predicting sex offense recidivism after controlling for Static 99 score. In this set of analyses, I chose total sexual charges and reconvictions to be the dependent variable. My logic for choosing this outcome measure is based on the continuous nature of the variable and the likelihood that it represents a more accurate estimate of the "true base rate" of sexual recidivism. For the first analysis, Static 99 score was entered in the first step, followed by the pre-treatment dynamic factor total. When both Static 99 score and post-treatment dynamic score were entered, a significant multiple correlation emerged ($R = .31, p < .001$). Controlling for Static 99 score ($\beta = .18, p < .01$), post-treatment dynamic score still contributed a significant amount of incremental variance to sexual offense recidivism, over and above that explained by the static variables alone ($\beta = .19, p < .001$).
3.9.2 Partial correlations.

Partial correlations were also computed as an additional means of controlling for Static 99 score and examining the unique relationship between dynamic factor score and outcome. This procedure entailed partialling out, or removing variance explained by Static 99 scores and correlating what is uniquely measured by the dynamic factors with outcome. As expected, the correlations between dynamic factor score and outcome dropped somewhat in magnitude; however, the relationships still remained significant. The post-treatment dynamic factor total was a significant predictor of total sexual recidivisms ($r = .13, p < .05$), total sexual charges and reconvictions ($r = .19, p < .001$), and yes/no any sexual charge/reconviction ($r = .18, p < .001$). After partialling out Static 99 score, post-treatment dynamic factor scores did not predict nonsexual re-offending ($r = .08$, NS). Although the relationships were smaller in magnitude, the pre-treatment dynamic factor total remained a significant predictor of total sexual charges and reconvictions ($r = .13, p < .05$) and yes/no any sexual charge or reconviction ($r = .13, p < .05$). However, the pre-treatment dynamic total failed to yield significant relationship with total new sexual convictions ($r = .09$, NS) and total non-sexual convictions ($r = .04$, NS).

3.10 Quantity of Change and Predictability of Change

As a further testament to the VRS:SO's predictive validity, change scores were in turn, correlated with various measures of outcome. Change scores were obtained through subtracting post-treatment dynamic scores from pre-treatment dynamic scores. Ideally, the magnitude of therapeutic change would be inversely related to sex offense recidivism. Although therapeutic change was inversely related to each outcome measure, this
relationship was significant only for yes/no any sexual charge or reconviction ($r = -0.12, p < 0.05$), and not significant with respect to any new sexual conviction or total new sexual charges and convictions (both $r = -0.10$, NS).

### 3.11 Static 99, Dynamic Factor, and Scale-Total Risk Cutoffs

The final set of analyses involved identifying optimum VRS:SO score intervals for assigning offenders to different risk categories. As mentioned earlier in the literature review, the Static 99 comprises four different risk categories based on the offender's final score: low (0-1), medium-low (2-3), medium-high (4-5), and high (6+). Following the same logic as the Static 99, a similar four-tiered risk classification scheme was developed for the VRS:SO dynamic and total scores. Figure 3.3 demonstrates a concomitant increase in the base rates of sexual recidivism with an elevation in risk for each category.

The dynamic risk categories were initially developed based on preliminary scrutiny of the pre- and post-treatment dynamic score distributions. Both distributions were reasonably normal with range between 6.70 and 53.8 (pre-treatment), and 4.47 and 52 (post-treatment) (odd figures are a result of using stepwise regression to estimate missing values). A chi-square was run using two variables: dynamic score and yes/no sexual charge/reconviction. Visual inspection of the output demonstrated a higher frequency of sex offense recidivism with an increase in total dynamic score (both pre- and post-treatment). Finally, rough cutoffs for four separate risk levels were established and another chi square analysis was performed to test the independence of the risk groups. The risk group cutoffs were empirically derived, with the goal being to maximize the value of the chi square statistic and thus maximize the discrimination (i.e., differences in sexual recidivism) among the four risk categories.
Figure 3.3

Risk Categories and Outcome (Sexual Charges and Reconvictions) for the Static 99, Dynamic (Post-Treatment), and Total (Post-Treatment) Scores
The resulting four risk categories based on the following dynamic score intervals yielded a significant chi square ($\chi^2 (3) = 12.41, p < .01$): low (0-14), medium-low (15-24), medium-high (25-34), and high (35+). In sum, with each risk category, there was a significant increase in the base rate of sex offense recidivism. For the low risk group, 14.3% were charged/reconvicted for a new sex offense, in comparison to 19.4% of the medium-low, 29.8% of the medium-high, and 46.2% of the high-risk offenders. While some of these recidivism rates appear to be disproportionately high for their risk category (e.g., 14% for a low risk group), it is important to qualify that this is partly the result of a lengthy follow-up period. That is, given enough time, many lower risk offenders may eventually re-offend. For instance, after 2 years follow-up, only 4.6% of offenders scoring in the low risk group were charged or convicted for a new sex offense. However, across a longer follow-up period the base rate of recidivism increased considerably.

Finally, the VRS:SO pre- and post-treatment total scores were divided into risk cutoffs based on the score intervals for the dynamic risk groups, and the average Static 99 score for the sex offender sample. In this case, as the mean Static 99 score was 4.39, this score was treated as a constant and added to each risk group. As with the static and dynamic risk cutoffs, the goal was to maximize the value of the chi square, thereby achieving strong discrimination among the four risk categories. The resulting chi-square statistic was significant ($\chi^2 (3) = 14.20, p < .01$), indicating that there were significant differences among the four cells (i.e., risk groups) with respect to sexual recidivism. Using this empirical procedure, the following risk categories were produced, with a corresponding increase in the base rate of sexual recidivism: low risk (0-19) with 11.8% of the offenders receiving new
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charges or convictions for sex offenses, medium-low (20-29), 20.5%, medium-high (30-39), 28.2%, and high-risk (40+), 35.4% sexually recidivating.

3.12 Correlations with Outcome by Actuarial Risk Group

Following the derivation of risk categories on the dynamic and aggregate dimensions of the instrument, the entire sample was subdivided into high and low actuarial risk groups on the basis of their Static 99 scores. Offenders scoring in the medium-high or high range comprised the actuarially high risk group (n = 204) whereas those receiving scores in the low and low-medium range made up the actuarially low risk group (n = 117). Pre- and post-treatment dynamic scores were then correlated with each outcome measure (see Table 3.11). Overall, the pre- and post-treatment dynamic risk scores were found to predict all sexual recidivism criteria significantly for the actuarially high risk offenders. However, dynamic risk scores did not predict any sex offense outcome criteria in the actuarially low risk group.

3.13 Examining Predictive Power of Change by Actuarial Risk Group

As a further extension of the above analyses, pre/post-treatment therapeutic change scores were in turn correlated with the recidivism criteria within the two actuarial risk groups (see Table 3.12). For actuarially high risk offenders, dynamic change scores predicted outcome at levels that were comparable to or higher than the entire sample, although significance was attained only with respect to total sexual charges and reconvictions (r = - .19, p < .01). However, in the actuarially low risk group, dynamic change scores correlated negligibly with all outcome criteria.
Table 3.11

**Univariate Correlations with Outcome by Actuarial Risk Group**

<table>
<thead>
<tr>
<th></th>
<th>Total Sexual Reconvictions</th>
<th>Total Sexual Charges/Reconvictions</th>
<th>Yes/No any Sexual Charge/Reconviction</th>
<th>Total Nonsexual Reconvictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk Pre-Txt</td>
<td>-.05</td>
<td>-.01</td>
<td>.04</td>
<td>.05</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Risk Post-Txt</td>
<td>-.03</td>
<td>.01</td>
<td>.04</td>
<td>.09</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Risk Pre-Txt</td>
<td>.19**</td>
<td>.24**</td>
<td>.19**</td>
<td>.06</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Risk Post-Txt</td>
<td>.24**</td>
<td>.30**</td>
<td>.27**</td>
<td>.10</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: ** p &lt; .01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.12

**Correlations Between Therapeutic Change Scores and Outcome by Actuarial Group**

<table>
<thead>
<tr>
<th></th>
<th>Total Sexual Reconvictions</th>
<th>Total Sexual Charges and Reconvictions</th>
<th>Yes/No Any Sexual Charge or Reconviction</th>
<th>Total Nonsexual Reconvictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic Change -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Low Risk (N = 117)</td>
<td>-.04</td>
<td>.00</td>
<td>.05</td>
<td>-.13</td>
</tr>
<tr>
<td>Therapeutic Change -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- High Risk (N = 204)</td>
<td>-.12</td>
<td>-.14</td>
<td>-.19**</td>
<td>-.11</td>
</tr>
<tr>
<td>Note: ** p &lt; .01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.14 Sentencing Length, Risk, and Recidivism

A final set of analyses were conducted to examine three sentencing-related phenomena: 1) Disparities in sentencing length between the index and recidivist sexual offenses, 2) The magnitude of these disparities, and 3) The relationship between VRS:SO score and recidivist sentence length. Although 79 (24.6%) offenders fulfilled the operational criteria for sexual offense recidivism, only 63 (19.6%) of them were actually reconvicted and sentenced following their charges. First, 28 (44.4%) of these men received a new sentence for a sex offense that was shorter in duration than the index offense, 2 (3.2%) received an identical sentence, and 33 (52.4%) received sentences that were longer than their index offenses upon sexually recidivating.

Secondly, the mean recidivist sentence length was significantly longer in duration (6.5 years) than the index sentence (4.5 years) \( (t(62) = 2.02, p < .05) \). It is also of noteworthy mention that more than 10% (8 of 63) of the recidivists were legally declared dangerous offenders and consequently received indeterminate sentences upon sexually re-offending. Finally, the VRS:SO aggregate scale and its individual components were not significantly related to recidivist sentence length.

In summary, the preceding analyses appear to offer preliminary support for the validity and reliability of the VRS:SO. A factor analysis of the dynamic component revealed a parsimonious three-factor solution with simple structure. The instrument and derived factors also demonstrated modest significant predictive and postdictive relationships with various sexual and nonsexual offense-related criteria. Importantly, the predictive power of the dynamic factors (especially post-treatment) for sexual offense recidivism was retained despite controlling for Static 99 score. The next section offers some elaboration on these
findings and details an integrative theoretical framework for the VRS:SO, suggested revisions of the instrument, shortcomings of the current investigation, and possible directions for future research.
4. Discussion

The present investigation sought to contribute to the burgeoning array of risk assessment instruments through the revision and adaptation of the Violence Risk Scale (VRS; Wong & Gordon, 1999) to the sex offender population. The resulting instrument, the Violence Risk Scale: Sexual Offender Version (VRS:SO), represents part of the dynamic or risk-needs assessment tradition for sexual recidivism. The VRS:SO was rated on a sample of 321 federally incarcerated sex offenders on the basis of their institutional files. A series of psychometric analyses followed examining the reliability, item properties, and validity of the instrument with respect to various criteria.

4.1 Comparisons Among Offender Subtypes on Scale Dimensions and in Risk

In keeping with past research and what has now become conventional wisdom, incest offenders were found to be the lowest risk group of the four offender categories. Incest offenders scored significantly lower than each remaining group on the Static 99 and the aggregate pre- and post-treatment scale totals. The mixed offenders appeared to be the highest risk group, amassing the highest mean scores on each scale component and significantly outscoring rapists and incest offenders on the pre- and post-treatment dynamic components in addition to both aggregate scale totals. For the most part, rapists and child molesters appeared to be evaluated as equal in risk, with no significant differences on any scale components or the aggregate VRS:SO totals.

A breakdown and comparison of offender group by factor score yielded more interesting results. Overall, child molesters received the highest mean rating on the Sexual Deviance Factor and significantly outscored rapists and incest offenders. Given their
penchant for sex with children, often prolonged periods of grooming, lifestyles revolving around fixations with children, and a steady and persistent cycle of offending (often dating back years and including multiple victims), it would be expected that child molesters would be rated more highly than other offenders on this factor.

Moreover, with respect to the Criminality factor, rapists and mixed offenders received comparable scores, yet outranked both child molesters and incest offenders. Although some rapists subtypes tend to limit their criminal activity to sexual assault (Prentky & Knight, 1990), for the most part, a sexual offense is usually part of a broader repertoire of offending (Pithers, 1994); the same might also be true for mixed offenders. The discrepancies in Criminality score may also reflect the fact that child molesters are more likely to specialize in a single pattern of offending (Hanson, Steffy, & Gauthier, 1995) and incest offenders often exhibit low rates of sexual offending or other types of criminal justice involvement.

4.2 Scale Reliability: Obtaining Consistency in Measurement

The internal consistency of the scale was examined using Chronbach’s alpha, which demonstrated that the scale appears to be measuring a reasonably homogeneous construct (i.e., risk for sexual offense recidivism) and has acceptable reliability. The aggregate scale and pre-treatment dynamic component yielded coefficient alphas of .80 and .79 respectively. Drawing on classical reliability theory (Allen & Yen, 1979), this would indicate that approximately 20% of the variability in scale scores is due to measurement error. Perhaps unexpectedly, the Static 99 demonstrated poor internal consistency (α = .41). Although one possible interpretation may be that the scale is unreliable, this may also reflect the heterogeneity of its content. For instance, the Static 99 contains items that tap areas as
diverse as sexual offending history, prior violence and criminal justice system involvement, victim characteristics, and offender demographics. Although each item has been empirically linked to sexual recidivism, the diversity in test content may serve to attenuate the measure’s internal consistency.

4.3 Factor Structure: Description and Implications

The results of an exploratory factor analysis on the dynamic component of the VRS:SO suggested an orthogonal three-factor solution to be the best fitting model. The final solution accounted for 40.2% of the total variance, all but four of the dynamic items loaded above the cut-off criterion of .40, and each item loaded on a single factor without any cross-loadings. Moreover, each factor was internally consistent, indicating that its constituent variables “hung” together. Given the composition of each factor the most suitable labels appeared to be Sexual Deviance, Criminality, and Treatment Responsiveness.

These three factors appear to reflect “criminogenic constellations” of core needs to be targeted for treatment and which impact risk accordingly. The first factor, Sexual Deviance, seems to reflect a constellation of variables tapping a pattern of entrenched deviant sexual behavior, thoughts, impulses, and fantasies. Sexual offenders who score highly on most of the items comprising this factor would tend to have deviant sexual preferences (e.g., sex with children, sex involving violence or humiliation), strong sexual impulses, compulsive sexual behavior, and a predatory style of selecting and abusing their victims. The second factor, labeled Criminality, consists of a series of items that seem to reflect a generic criminal or antisocial lifestyle. Individuals scoring high on this factor would tend to display a persistent pattern of interpersonal aggression, abuse psychoactive substances, and exhibit markers of
the criminal personality (e.g., shallow emotions, callous disregard for others). These offenders might have little regard for their own risk or fail to take appropriate cautions to manage it effectively, have an impoverished support network, and fail to abide by the conditions of their release or comply with community supervision.

The third and final factor, Treatment Compliance, reflects a constellation of variables measuring an offender’s progress and responsiveness to treatment intervention (although the amount of change on each dynamic item would also provide an index of improvement or responsiveness to treatment). Individuals who score highly on the majority of items comprising this factor would likely exhibit a lack of commitment to the treatment process and poor motivation to change. They may lack insight, be unwilling to discuss the nature or dynamics of their offending, or make attempts to distort, rationalize, downplay, or minimize their own complicity in their offending.

It came as some surprise that at least one of the dynamic items, (D16 Attitudes Legitimating Sexual Offending) failed to load significantly on any of the factors. This item individually predicted total sexual charges and reconvictions, it was normally distributed, and visual inspection of the inter-item correlation matrix indicated that it correlated with other items reasonably well. However, when a more lenient loading criterion was used (i.e., .30) this item was found to load highly on both the Criminality and Treatment Responsiveness Factors. The remaining items that failed to load were somewhat less surprising. Given the low base rate of severe mental illness in most incarcerated sex offender populations, let alone the small proportion for whom there is an identifiable relationship between their psychiatric illnesses and sexual offending, it is unlikely that this factor would have much predictive power, correlate highly with any of the remaining items, or load highly on a particular factor.
Affective State and Acute Stress appear to be unique from the remaining dynamic items, in that they seem to be acute, rather than stable, predictors of sexual offending.

4.4 Measuring the Severity and Extent of Offense History

The postdictive validity of the scale was evaluated with respect to two measures of sexual offending history (prior sexual convictions and sentencing dates) and nonsexual offending history (prior nonsexual convictions). Overall, the aggregate scale, its individual components, and derived factors demonstrated strong postdictive validity. In light of its static and historical nature, the Static 99 correlated exceptionally strongly with each measure of offense history; however, as the Static 99 has been developed largely from the criterion with which it was being compared, such a relationship is more tautological in nature and provides little new information.

Perhaps of greater importance, the dynamic component of the VRS:SO correlated significantly with all three measures of offense history, in particular, measures of past sexual offending. Moreover, the pre-treatment dynamic yielded stronger relationships with both measures of sexual offense history than the post-treatment component of the scale. These correlational trends were in the expected direction, as the pre-treatment dynamic provides an appraisal of risk prior to receiving any intervention (e.g., sex offender programming), and thus ideally would be a more accurate reflection of the severity of an individual’s offending history than the post-treatment dynamic, which is geared towards post-intervention behavior. Interestingly, the pre- and post-treatment dynamic correlated equivalently with nonsexual offending history. Although the relationship was significant, it was smaller in magnitude than the correlations obtained with respect to sex offense history. Given that the focus and intent
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of the scale is not to measure one’s propensity for general criminal behavior (e.g., property offenses, robbery), in some ways, this is none too surprising; however, it is not entirely clear as to why the pre-treatment component would not postdict more strongly. Another possibility may be that sex offender treatment programming is not specifically targeting general criminality enough, to the extent that changes on dimensions of this factor are not more predictive of future outcome.

The importance of examining the postdictive validity of an instrument reflects the notion that it is well-established that past behavior is one of the best predictors of future behavior. In addition, establishing such properties in the VRS:SO also suggests that it may provide an index of the extent and severity of the individual’s offense history. Thus, higher scores on the VRS:SO may be indicative of an offender who will commit more serious sex crimes and amass a greater number of victims, in addition to whether an offender will commit any new sex offense.

4.5 Some Issues and Findings in the Prediction of Sexual Offense Recidivism

The capacity of the VRS:SO to predict sexual and nonsexual offense recidivism was examined with respect to several different outcome criteria. The Static 99, pre-and post-treatment dynamic scores, and total aggregate pre- and post-treatment total scores were significant predictors of each sexual recidivism criterion including total sexual reconvictions, total sexual charges and reconvictions, and yes/no any sexual charge and reconviction. Moreover, the Static 99, post-treatment dynamic, and post-treatment total scores were also significantly correlated with total nonsexual reconvictions. Finally, even after controlling for Static 99 score, partial correlations computed on the pre- and post-treatment dynamic scores
retained significance with respect to most of the sexual recidivism outcome measures. These findings have several important implications.

First of all, the dynamic factor scores not only predicted sexual offense recidivism, but the trend of the relationships was also in the expected direction. Although both pre- and post-treatment dynamic scores predicted, the post-treatment component consistently out-predicted the pre-treatment component with respect to each outcome measure. Although the magnitude of the improvement in prediction was in most cases small (i.e., difference of $r$ ranged between .03 and .05), the fact that the differences observed were in the expected direction is encouraging.

Secondly, these findings provide further evidence for the predictive power of dynamic risk factors. Gendreau et al.'s (1996) meta-analysis of 131 criminal recidivism studies empirically demonstrated that criminogenic needs, in addition to other separately considered dynamic risk markers (e.g., antisocial personality, attitudes), were as equally strong and robust in their capacity to predict recidivism ($r = .18$) as their static counterparts (e.g., age, criminal history). The current study parallels Gendreau et al.'s findings with a different group of offenders – after controlling for relevant static predictors, dynamic factor scores continued to significantly predict sexual recidivism across different measures of outcome. Moreover, the absolute magnitude of the dynamic correlations with respect to outcome were comparable to those of the Static 99.

A final issue concerns the interpretation of the Pearson Product Moment correlation coefficient. All too frequently, critics of forensic risk assessment and prediction cite that correlations in the .20 to .30 range between predictor and outcome are too small to be of much practical importance or value – especially after squaring the correlation would serve to
indicate that a given instrument or risk factor only "explains" roughly 5 to 10% of the variance in outcome (Andrews & Bonta, 1998; Gendreau, Goggin, & Paparozzi, 1996). Although this is one means of interpreting the correlation coefficient, in some situations this may not be the most accurate way to do so. For instance, when the base rate of the behavior to be predicted (i.e., recidivism) is not too extreme, the absolute value of r should be taken at "face value." In this case, the magnitude of r would approximate the percentage difference in recidivism between individuals with more versus less of a given characteristic (Gendreau et al., 1996; Hanson & Bussière, 1996) (this point will be elaborated upon in the discussion of individual predictors below).

Further analyses also supported the predictive validity of the three factors derived from a factor analysis of the pre-treatment dynamic portion of the instrument. Each factor correlated significantly with the majority of the sexual recidivism criterion measures. Sexual Deviance appeared to be the strongest overall predictor of sexual recidivism (although it did not correlate highly with the yes/no criterion), and was inversely related to nonsexual reconviction. One possible explanation for this apparent oddity could be that the offender group scoring most highly on the Sexual Deviance factor were not criminalized in nonsexual ways. For instance, child molesters, who are most likely to evidence bona fide sexual deviance, tend to have lower base rates of generic criminal activity than other sex offenders (Hanson et al., 1995); in fact, in the current study child molesters evidenced base rates of nonsexual recidivism that were less than half that of rapists. Thus it is conceivable that higher scores on this factor may be associated with lower rates of nonsexual re-offending. The Criminality factor significantly predicted all recidivism criteria, especially nonsexual reconviction, and the Treatment Compliance factor predicted all criteria with the exception of
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total sexual reconvictions. Given the content of the factors, the majority of these trends are also in the expected direction. For instance, the Criminality factor, which is comprised of dynamic predictors ubiquitous to all forms of criminal conduct, most strongly predicted general recidivism.

ROC analyses also supported the predictive accuracy of the VRS:SO aggregate scale. The advantages of ROC analyses over \( r \) in assessing the predictive power of an instrument, is that the resulting metric (i.e., area under the curve) is unaffected by base rates and can be used for comparative purposes between other instruments and across different studies (Mossman, 1994; Rice & Harris, 1995). The resulting AUC of .65 suggests that there is approximately a 65% chance that a randomly selected sexual recidivist will receive a more deviant score on the VRS:SO than a randomly selected non-recidivist. Although this indicates that the VRS:SO is reasonably adept at discerning recidivists from non-recidivists across different decision thresholds (i.e., cutoff scores). Future investigations will focus on increasing the AUC by reducing the number of false positive and negative decisions.

One final converging line of evidence to support the predictive properties of the VRS:SO, entails the derivation of risk categories and consequent increase in the base rates of sexual offense recidivism. Chi square analyses supported the formulation of a four-tiered system for categorizing risk. For the Static 99, dynamic total, and aggregate VRS:SO score, there was a linear increase in the base rates of sexual offense recidivism, with corresponding increase in the severity of each risk category. Put simply, offenders who fall into higher risk categories evidence higher base rates of sexual recidivism.
4.6 Individual Predictors of Outcome

As a means of identifying the most potent dynamic predictors of sexual offense recidivism for the entire sample, their individual univariate relationships with respect to two sex offense outcome criteria were examined (total sexual charges and reconvictions, yes/no any sexual charge or reconviction). Risk markers that were the strongest consistent predictors, as evidenced by significant correlations across both sets of outcome criteria included Sexually Deviant Lifestyle, Affective State, Insight, Released to High Risk Situations, and Compliance with Community Supervision. Interestingly, upon casual scrutiny, items loading on the Sexual Deviance factor seemed to be the best predictors of any new sexual re-offense; however, items that seemed to be more indicative of an antisocial lifestyle and loaded on the Criminality factor seemed to be best at predicting the density of sexual re-offending (i.e., number of new sexual convictions). One means of interpreting "r" in this context would involve the same rule of thumb identified above. For instance, given a base rate of approximately 25%, roughly 35% of offenders exhibiting sexually deviant lifestyles would sexually re-offend in comparison to 15% who do not.

Given the possibility that some dynamic risk factors may be more germane to risk for some groups of sex offenders over others, child molesters and rapists were compared on each of the 19 dynamic items. Overall, rapists received higher mean scores than child molesters on Criminal Personality, Interpersonal Aggression, Substance Abuse, and Impulsivity. On the other hand, child molesters received higher mean rating than rapists on Sexually Deviant Lifestyle, Sexual Compulsivity, Offense Planning, Cognitive Distortions, Sexual Offending Cycle, and Deviant Sexual Preference.
4.7 Does Therapeutic Change Predict?

Of both theoretical and practical merit is the sensitivity of the VRS:SO in detecting improvement over the course of treatment, and whether such measures of therapeutic change actually predict outcome. Overall, therapeutic change scores (i.e., discrepancies between pre- and post-treatment dynamic scores) bore a modest but consistent inverse relationship with different criterion measures of sexual recidivism. Only with respect to total sexual charges and reconvictions was the relationship strong enough to achieve statistical significance. A cautious interpretation of these findings might be that a greater magnitude of change over the course of treatment in sex offender programming, marginally predicts a reduction in sexual offense recidivism. Offenders who successfully address and make changes in their criminogenic needs, seem to reduce their likelihood of sexually re-offending.

The capacity of therapeutic change (using the TTM) to predict recidivism has received mixed support. For instance, in a sample of 60 violent offenders who received treatment services at the RPC, Burt (2000) found that therapeutic change measured from the VRS did not predict future violence across different outcomes (i.e., number of violent reconvictions, yes/no any violent reconviction). However, an earlier investigation conducted by Wong and Gordon (1999) on a sample of 71 violent offenders did yield a highly significant relationship between VRS change scores and violent reconviction ($r = -.28$). The difference may have been partly reflected in the methodology between the two investigations. For instance, Burt (2000) performed a retrospective design over an average of 7.5 years, and Wong and Gordon (1999) used a true longitudinal approach, monitoring the offenders for a period of at least 12-months in the community. The findings from the current
study provide some further evidence that therapeutic change has the capacity to predict recidivism, and that the VRS:SO may be sensitive to reductions in risk.

Although change on sex offender-specific criminogenic dimensions does bear a modest relationship to outcome, the magnitude of this relationship is nevertheless small. One possible explanation may reflect the nature of the dynamic risk factors themselves. For instance, items such as Offense Planning, Sexually Deviant Lifestyle, Acute Stress, Sexual Compulsivity, Sexual Offending Cycle and the like are difficult to directly observe in an institutional environment. Unless the offender has access to potential victims or is encountered with high risk situations and stressors outside the prison community, it would be difficult to determine how much the offender has changed (or worsened) on these dimensions. Thus, the clinician must evaluate change with reference to a proxy of the risk factor or the offending behavior. For instance, if the offender can effectively discontinue behaviors associated with a sexually deviant lifestyle or victim grooming (e.g., becoming wed to a single mother with young children during incarceration, collecting child pornography, fantasizing about past victims), then change may be evaluated in these areas.

It is uncertain whether rating the proxy of a behavior is as adequate as rating its real-life counterpart, and if evaluating such behavioral proxies is sufficient to evaluate change. Criminogenic dimensions on the VRS such as security level of the releasing institution, violence during incarceration, and emotional disinhibition are easily observed, monitored, measured and evaluated in the institution. As such, ratings of change are perhaps easier to make, more reliable and possibly more predictive of a reoccurrence of the problem behavior after release.
4.8 Sentence Length and Sexual Recidivism

A comparison of the sentence length received for the index sexual offense versus the first reconviction for a sexual offense upon release demonstrated that inmates were roughly equally as likely to receive a new sentence that was shorter or longer than the index sentence. Although the mean recidivist sentence length was longer than the mean index sentence, this difference was not significant. Moreover, modest but nonsignificant relationships were found for each of the dynamic scale components and the aggregate measure with recidivist sentence length. Although the magnitude of the correlations suggest that the lack of significance may be a power issue (i.e., only 63 (19.6%) offenders were actually reconvicted and sentenced for a new sex offense), at this time it is premature to conclude that the VRS:SO is capable of providing an appraisal of the actual severity of a would-be sex offense upon re-offending.

4.9 Dynamic Validity Across Actuarial Groups: Implications for Risk and Need

Another point of interest involved examining the predictive validity of the dynamic risk factors across different actuarial risk groups. The results clearly demonstrated that pre- and post-treatment dynamic factor scores predicted sexual offense recidivism across all outcome criteria in actuarially high and medium risk offenders; however, dynamic risk scores were uncorrelated with all sexual offense outcome criteria for actuarially low risk offenders. These findings reflect a theoretical proposition made by Nicholaichuk (1994).

The risk and need principles posit that effective correctional intervention involves reserving high intensity treatment for the highest risk offenders and targeting criminogenic needs for change (Andrews et al., 1990). Low risk offenders also tend to be low need offenders – that is, they have few criminogenic areas that urgently need to be addressed
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through treatment, and in many cases their risk can be safely managed in the community (Nicholaichuk, 1994; Gordon & Nicholaichuk, 1994). Delivering high intensity interventions to already-low risk offenders is somewhat akin to shooting a mosquito with a cannon. In some cases, inappropriately administering high intensity interventions to low risk clients may even exacerbate their risk (Nicholaichuk, 1994). Using this line of reasoning, any changes and reductions that occur in core criminogenic areas resulting from high-intensity treatment may only predict for medium to higher risk offenders.

Applying this logic, the entire sample was subdivided into high and low actuarial risk groups based on Static 99 score, and therapeutic change scores were correlated with outcome for each of the two groups. For the actuarially high risk group, a significant inverse relationship was found between magnitude of change and the yes/no sexual recidivism criterion, and marginally significant relationships were found in the same direction with respect to remaining sexual recidivism criteria. However, negligible relationships were found between change and all of the sexual recidivism criteria in the group of actuarially low risk offenders. This also provides some further support for the risk and need principles. That is, not only are higher risk offenders likely to benefit from high-intensity treatment, but any changes incurred as a result are more likely to be predictive of outcome.

4.10 An Integrated Summary of Support for the Theoretical Components of the VRS:SO

In sum, the research findings from the current investigation can be interpreted as providing partial support for the theoretical models of the Psychology of Criminal Conduct (PCC), Transtheoretical Model of Change (TTM), and Relapse Prevention (RP). It is important to emphasize, that the TTM was the only a priori theoretical formulation with
supporting data, whereas the formulations for the PCC and RP were added post hoc. First, support relating to the Big Four of the PCC can be inferred from the relationships between some of the individual dynamic risk factors (e.g., criminal personality, attitudes) and recidivism. Moreover, the interesting finding that the dynamic factors evidenced significant relationships to outcome only in the high risk offenders appears to be consistent with the risk and need principles. For instance, changes in risk on dynamic factors, owing to high intensity treatment, predicted outcome only among high risk offenders.

Secondly, many of the items within the VRS:SO are consistent with RP theory, and some of these risk variables bore significant relationships to outcome. Factors such as *Insight*, *Affective Condition*, *Released to High Risk Situations*, *Offense Planning*, and *Substance Abuse* were correlated with sexual recidivism. For instance, consistent with RP theory, an offender who exhibits poor understanding into the dynamics and causes of his offending, experiences negative affect (e.g., loneliness), immerses himself into an HRS (e.g., cruises a prostitute strip, visits a bar), becomes intoxicated, and begins rehearsing violent sexual fantasies (offense planning), could be setting himself up for relapse. However, it is important to state that RP theory was not directly tested in this research, and a more direct exploration of RP concepts (e.g., through path analysis) would be needed to provide further support for the theory.

4.11 Future Revisions of the VRS:SO

The results from the first preliminary set of psychometric analyses seem to warrant some cautious optimism about the validity, reliability, and utility of the VRS:SO. However, as with all psychometric instruments, one must resist the temptation to become complacent
and recognize potential opportunities for improvement. At this point, it seems warranted to consider some potential revisions that will mark the second version of the VRS:SO.

A first area to consider will be the Static 99. Although in this study, the predictive power of this instrument with respect to sexual and nonsexual offending has been established, the Static 99 will inevitably be revised. Future revisions to the VRS:SO will likely entail the development of a new static component using actuarial procedures. The result would be a new set of static factors, converging with the Static 99, that are more structurally consistent with the dynamic factors (e.g., 4-point scale format).

A second potential area for revision involves deleting items with poor psychometric properties, and which seem to measure anything but one’s propensity for sexual offense recidivism. Some items that may be potential candidates for removal at least include Mental Disorder and Acute (Critical) Stress. These variables did not predict nor load on any of the factors, and they correlated poorly with the aggregate scale and the remainder of the items. Suffice it to say, they do not seem to contribute much in the way of measuring individual differences in propensity for sexual recidivism.

Other items will need rewording in the manual with the intent of capturing the essence of the risk construct more completely and to improve interrater agreement in scoring. Personal communication with the research assistants on scoring the instruments has been immensely useful in this regard. My own experience in rating the scale has also helped bring to light some potential problems with item wording that certainly warrant further revision (e.g., clarity of wording and examples, construct operationalization). It is unlikely that any of the variables will escape some form of revision, but some of the most likely candidates for change include Cognitive Distortions, Sexually Deviant Lifestyle, Substance Abuse,
Affective State, Treatment Compliance, Attitudes, and Community Support. In addition, some better examples of 0 and 3-point ratings will be provided for both child molesters and rapists on each of the items.

A fourth potential revision will involve incorporating new dynamic variables that have been linked to an increase in the likelihood, frequency, and severity of sexual offending. These variables may become a formal part of the dynamic component or potentially be included as part of a critical override. For instance risk markers such as unemployment (Hanson & Harris, 2000; Maletzky, 1991), associates or companions who have committed sex offenses (Hanson & Scott, 1996), or who may be poor influences in general (Hanson & Harris, 2000), dysfunctional intimate relationships or interpersonal discord (Bumby & Hansen, 1996; Hanson & Harris, 2000; McKibben et al., 1994; Proulx et al., 1996), perception of self as no risk (Hanson & Harris, 2000), the broader construct of lifestyle impulsivity (Prentky & Knight, 1986; Prentky & Knight, 1995), emotional dysregulation (Hanson & Harris, 2000) or a recent escalation in the frequency and severity of sexual offending, may be potential candidates for inclusion.

An additional change will be developing a useful critical override to help the clinician to incorporate other types of risk-related information that may be germane in his or her client’s case, but not otherwise part of the formal VRS:SO risk assessment protocol. A useful critical override should have some clear guidelines about how and when it should be used—for instance, when an actuarially low risk case may be elevated to medium (e.g., extensive criminogenic needs such as a strong deviant sexual preference). In addition to the risk markers identified above, other potential variables to include would be more rare or unusual factors such as an acute psychotic illness that has been repeatedly linked to sexual offending,
or bizarre and sadistic elements of past offenses (e.g., torture, mutilation) (see Boer et al., 1998). Finally, some additional static factors may be of some value such as juvenile sex offenses, age of first sexual offense, number of previous victims, or having multiple victim types.

A sixth possible area for revision would involve creating separate child molester and rapist norms. Although using such a gross typology for classifying offenders may appear problematic at first, guidelines can be explicated to facilitate a proper use of norms. For instance, some rough preliminary guidelines used in our own research are to classify mixed offenders as rapists and incest offenders as child molesters. However, additional provisions could be made such as ratio of child to adult victims, age of victim and so forth (e.g., it may be more accurate to classify an incest offender whose victim is a precociously developed 13-year old as a rapist, rather than a child molester). As the current investigation demonstrated that some dynamic risk factors are more relevant and predictive for child molesters, and vice versa for rapists, separate norms may be appropriate. However, as both groups received similar scores on the Static 99, dynamic component, and aggregate scale, separate norms may not be necessary either. Future research is required to settle the norming quandary.

A seventh area involves the conceptualization and rating of change using Prochaska et al.’s (1992) transtheoretical model. In retrospect, potential problems could reflect the possibility that we have yet to find a more feasible way to quantify and apply this model to forensic populations, or to conceptualize offender change. Wong and Gordon’s (1999) recent work with the VRS, and the current study to a lesser extent, shows that Prochaska’s model has considerable promise. The enigma seems to be in accurately and reliably measuring offender change, rather than in use of the TTM per se.
These issues will translate into a revision through more diligent and finer grained scrutiny into the nuances of offender change across each stage of the TTM for each dynamic risk factor. Hopefully, a more thorough examination of the post-treatment component of the instrument will improve its sensitivity in detecting therapeutic change, and consequently what implications this may have for sexual recidivism.

In addition, it must also be advised that the VRS:SO is a clinical instrument that should be administered and scored by a mental health professional with adequate clinical experience and/or supervision. For instance, raters should have some experience or graduate training in working with sexual offender populations as well as addressing areas as intrusive, personal, sensitive, and threatening as those commonly incorporated in a sexual offense risk assessment (e.g., sexual functioning, fantasy life, abuse history). Some appropriate personnel would include psychiatric nurses, social workers, psychologists, psychiatrists, counselors, and parole officers.

4.12 Shortcomings of the Present Study

Although the present investigation has yielded some promising and important findings, it has had its own set of methodological shortcomings that may hinder its generalizability. First of all, the study was entirely retrospective in nature. VRS:SO’s were rated using file information from patients who had received treatment services from the Clearwater program a number of years ago. They had already been released and had been given ample time in the community to re-offend. Although follow-back designs are a time and labor saving approach, they do represent an artificial means of increasing one’s follow-up time and may be limited in their generalizability. A true predictive study in which the
offenders are monitored in the community following their release would have been ideal, but practically unfeasible. However, a truly longitudinal study is likely in the research forecast for the VRS:SO.

A second important liability concerns the use of file information, both in the development of the instrument and its validation. With respect to test development, variables were selected for the instrument, wording was modified, and items were deleted or rejected for inclusion partly on the availability of information in the offenders’ treatment files. The instrument was revised both in light of what research or theory had indicated should predict, and what the pragmatics of coding dictated.

Moreover, the quality of information available in the files also impacted the rating of the instrument and the offender’s score (see Wong, 1988). For instance, an offender with a skimpy institutional file, poorly written treatment progress reports, and little involvement in mental health-related activities (e.g., psychiatric intake assessments, individual therapy sessions, other programming) may not be ratable on the basis of his or her institutional files alone. Alternatively, several items may be omitted, or the offender’s risk may over- or underestimated.

Finally, some information may be more readily elicited or made apparent through an interview, such as an offender’s attitudes towards sex with children, his motivations for offending, or tendency to make excuses or rationalize his offending. To remedy some of these problems in part, future research and further revisions to this instrument should incorporate the interview schedule.

A third potential problem involved the difficulty in discerning and rating among different nuances of change on the dynamic risk factors (see section titled “Future
Revisions...” above). This may reflect the fact that proxies of the offending behavior and many of the dynamic risk factors must be rated, rather than real-life examples of the offending behavior itself. For instance, access to child victims is obviously restricted in a prison environment, so one must evaluate risk and rate change through behavioral proxies (e.g., possession of child pornography). As mentioned above, a finer grained analysis of change on such dimensions through Prochaska’s model may be one antidote to facilitate the rating of therapeutic change.

A fourth and related problem involves distinguishing legitimate therapeutic change from “pseudo-change.” Although most treatment service providers would be inclined to believe that the changes they observe in their clients are in fact real, this does not negate the possibility that for at least some of them, it may be false. Offenders who complete numerous institutional programs eventually become acquainted with the goals and expectations of treatment. They learn from role models about more prosocial ways of thinking, feeling, and acting. They learn program jargon, complete homework assignments, and attempt to apply the material from psychoeducational groups to their own offending behavior. In short, it is possible that some clever offenders can also learn how to feign improvement without really effecting much change into their own sexual deviance. I am optimistic in believing that the change rated on the VRS:SO protocols does reflect genuine improvement, although the length of some of these changes may be short-lived.

For one, my own bias reflects my belief in the redeemability of all people and the faith that there are few sexual offenders who are capable of fabricating pronounced and enduring change, and effectively deceiving treatment staff into believing that they have become reformed individuals. From my own experience, in many cases sex offenders may
learn the content and theory of the program material (i.e., "talk the talk"), but are not able to "walk the walk." For instance, a rapist may voice the evils of sexually objectifying women in a cognitive skills group, only later to return to his cell and masturbate to violent pornography. In such cases, treatment staff will usually confront the offender about their concerns about how well they have "internalized" the material or developed "insight, " and further express these concerns in progress notes, treatment reports, or risk assessments. Unfortunately, I do believe that there is a small minority of sophisticated offenders who are capable of deceiving some of the most sagacious mental health professionals into believing they have made rehabilitative gains where there have been none. Tragically, it is usually their victims who will make this discovery.

Secondly, some recent work by Nicholaichuk, Gordon, Wong, and Gu (2000) investigating the efficacy of the Clearwater treatment program on this sample supports the legitimacy of change. A group of 296 offenders who completed treatment were compared to a sample of 283 no-treatment controls, matched with respect to current age, index offense, and sexual offending history. Over an average of 6.5 years follow-up, only 14.5% of the Clearwater sample received a new conviction for a sex offense, compared to 33.2% of the matched untreated controls. In other words, had the gains displayed by the offenders on these dynamic risk dimensions (which had been shown to predict sexual recidivism) not been legitimate, one would have expected to see higher base rates of sexual offense recidivism in the treated offenders.

A final shortcoming reflects the hybrid nature of the current study. Due to the constraints of time, funding, and human resources, it was not possible to accumulate a sufficiently large sample to conduct separate test construction and validation studies. Ideally,
a sample of at least comparable magnitude would have been reserved for the purposes of developing, piloting, and norming the instrument before any psychometric work was attempted. The instrument could then be rated on a separate sample for the purposes of testing the scale’s criterion-related validity. Following this approach may have ensured that the instrument was perhaps better established before any psychometric analyses were attempted, which may have had the effect of producing a methodologically cleaner study.
STUDY 2: THE REVISION AND PSYCHOMETRIC EVALUATION OF THE VIOLENCE RISK SCALE: SEXUAL OFFENDER VERSION (VRS:SO)

1. Literature Review

The following provides a brief overview of static and dynamic predictors of sexual recidivism, including a review of key dynamic factor studies. In addition, new sex offender risk assessment instruments that have been developed since the first study will be reviewed along with relevant psychometric research. Finally, shortcomings of the Static 99 will be discussed and my rationale for revising and revalidating the static dimension of the VRS:SO will be presented.

1.1 Static and Dynamic Predictors of Sexual Recidivism

To briefly review, risk-related variables predictive of recidivism are commonly classified into two broad types – static and dynamic (Andrews & Bonta, 1998). Static risk factors are largely historical variables (e.g., age, criminal history) which tend to evidence little change over time. Dynamic factors (e.g., criminal attitudes, substance abuse, antisocial peers), however, are factors that have the capacity to change, for instance, with the advent of treatment.

Researchers have identified several static factors to be significant predictors of sexual recidivism, including prior sex offenses (Hanson & Bussière, 1996/1998; Hanson, Steffy & Gauthier, 1993; Rice, Harris, & Quinsey, 1990; Rice Quinsey, & Harris, 1991), young age (Fitch, 1962, Hanson & Bussière, 1996/1998, Kahn & Chambers, 1991), male victims (Fitch, 1962, Hanson et al., 1993, Hanson & Bussière, 1996/1998, Proulx, Pellerin, Paradis, McKibben, Aubut, & Ouimet, 1997), single marital status (Rice et al., 1991; Hanson et al.,
1993; Hanson & Bussière, 1996/1998), prior convictions for non-sexual violence (Quinsey, Rice, & Harris, 1995; Rice et al., 1990, 1991), stranger victims (Hanson & Bussière, 1996/1998; Hanson & Harris, 2000; Studer & Reddon, 1998), and unrelated victims (Hanson et al., 1993; Proulx et al., 1997).

In recent years, increasing efforts have been made to identify dynamic, or changeable predictors of sexual recidivism. The small number of studies has been growing steadily, and in the last five years, at least three investigations have been conducted explicitly with the intention of identifying dynamic predictors of sexual recidivism. In one of the earlier studies, Proulx, Pellerin, Paradis, McKibben, Aubut, and Ouimet (1997) administered a battery of psychometric tests and phallometrically tested 113 rapists and 269 child molesters. The offenders were followed up an average of 64.5 months, with 21.2% of the rapists and 13% of the child molesters being convicted for new sex offenses. Although the main intention of the authors was to identify potential dynamic variables, none of the psychometric measures discriminated recidivists from non-recidivists within either group. Rather, static variables tended to predict better. Recidivating rapists tended to be younger and to have more previous convictions, whereas recidivating child molesters tended to have a stronger pedophilic attraction to children, more male victims, extrafamilial victims, were younger, had more sexual charges, and were more likely to be living alone.

Kenny, Keogh, and Seidler (2001) examined potential dynamic predictors and variables causative of sexual recidivism in a sample of 70 Australian juvenile sex offenders awaiting sentencing. Youths who were first time sex offenders (57%) were compared to youths who had been charged with previous sex offenses (43%) on key measures of social, psychological, and sexual functioning. The strongest predictors of sexual recidivism included
deviant sexual fantasies, poor social skills, and deviant sexual experiences. Kenny et al. then subjected their measures to path analysis and formulated a causal model of sexual recidivism. In their model, deviant sexual fantasies, poor social skills and learning problems were found to be causally related to sexual recidivism.

Finally, in perhaps one of the most ambitious scholarly undertakings conducted in recidivism research to date, Hanson and Harris (1998/2000) examined the relationships of a large number of dynamic risk factors to sexual recidivism in a sample of 409 (208 recidivist and 201 non-recidivist) child molesters and rapists. Several risk-related variables and risk scales were rated from the offenders' files. In addition, their community supervision officers completed comprehensive interviews regarding observed changes in the recidivists 6 months and 1 month prior to their re-offense dates. Recidivists and non-recidivists were matched on prior sexual offending history and victim type and then compared on several risk factors.

Recidivating sex offenders were more likely to have a lifestyle congruent with sexual deviance, a greater number of paraphilias, higher PCL-R (psychopathy) ratings, and a greater percentage met the diagnostic criteria for antisocial personality and psychopathy. Hanson and Harris (1998/2000) also made a distinction between stable and acute dynamic risk factors. **Stable dynamic** factors are relatively enduring risk factors that show little change without intervention, whereas **acute dynamic** factors change and fluctuate much more heavily, and often immediately precede the commission of a sex offense. Stable dynamic risk factors significantly associated with sexual recidivism included unemployment, substance abuse, negative social influences and few positive social influences, attitudes supportive of sexual offending (child molester attitudes, rape myths, sexual entitlement, low remorse/victim blaming), viewing self as no risk, victim access, sexual preoccupations, antisocial lifestyle,
uncontrolled release environment, and poor cooperation with supervision (i.e., disengaged, manipulative, poor attendance, overall compliance). Finally, strong acute predictors of sexual recidivism (i.e., any deterioration within one month prior to offending) included negative mood, anger, substance abuse, victim access, interpersonal conflict, and poor cooperation with supervision.

Currently Hanson and Harris have begun an extremely large-scale dynamic risk factors study conducted in Canada nationwide. Approximately 1,000 sex offenders are being interviewed and rated on myriad stable and acute dynamic risk markers by mental health professionals, parole officers, and other criminal justice personnel. This study is also a true prospective study, with offenders being tracked and followed up for two years following their assessment. This study stands to make an extremely important contribution to the field of sex offender risk assessment, through the identification of salient dynamic predictors of sexual recidivism. The findings will have important ramifications for the development and refinement of risk assessment instruments, and potential treatment targets to be addressed in sex offender treatment programs.

1.2 Recently Developed Instruments for the Prediction of Sexual Recidivism

Although the identification of risk factors for the prediction of sexual recidivism is an important undertaking, having a collection of variables alone will do little in guiding the clinician in formulating a risk appraisal without some systematic means of weighting and combining the deluge of information (Hanson, 1998, 2000) – especially since humans tend to be quite poor at this configural processing (Turk & Salovey, 1991). Risk assessment instruments, however, provide a systematic way of structuring, weighting, organizing, and
combining diverse information impacting the offender's risk for recidivism. Salient risk-related items are rated, summed together into an aggregate score, and usually translated into a final summary risk rating (e.g., low, medium, high) (Bonta, 1996).

Since the first study, additional instruments for the assessment of risk for sexual recidivism have been developed and subjected to efforts at validation. These instruments include the Juvenile Sex Offender Assessment Protocol (J-SOAP; Prentky, Harris, Frizzell, & Righthand, 2000) the Estimate of Risk of Adolescent Sexual Offense Recidivism (ERASOR; Worling & Curwen, 2001), the Multifactorial Assessment of Sex Offender Risk for Recidivism (MASORR; Barbaree, Seto, Langton, & Peacock, 2001), and the Sex Offender Need Assessment Rating (SONAR; Hanson & Harris, 2000/2001).

In recent years, increasing attention has been directed towards young sex offenders. The traditional folklore was that sexually deviant behavior in children and adolescents was a product of natural childhood experimentation, relatively trivial in nature and nothing to be alarmed about. However, research has shown that sexually aggressive behavior in youths is neither trivial nor childish experimentation. It has been estimated that adolescents are responsible for 20% of all forcible rapes and 30% to 50% of all acts of child molestation (Prentky et al., 2000). Given this need, there has been an increase in the development of structured assessment protocols for juvenile sex offenders.

The J-SOAP is an actuarial risk assessment protocol for young sex offenders consisting of 23 items subdivided into 4 rationally-derived scales: Scale I: Sexual Drive/Sexual Preoccupation; Scale II: Impulsive, Antisocial Behavior; Scale III: Clinical/Treatment; and Scale IV: Community Adjustment. Prentky, Harris, Frizzell, and Righthand (2000) rated the scale on a sample of 96 juvenile sex offenders referred for
assessment and treatment. The youths were followed up for approximately 12 months, during which only three (3.1%) of the youths committed another sex offense. Given this extremely low base rate, the researchers were limited to running descriptive statistics on the instrument, and were unable to evaluate its predictive accuracy. In general, the three sexual recidivists scored higher on the overall protocol than non-sexual recidivists and non-recidivists, and tended to score higher on the Sexual Drive/Sexual Preoccupation Scale. However, these findings remain extremely tentative and unconfirmed by inferential statistics.

The ERASOR is an empirically-guided, clinical instrument for appraising risk for sexual recidivism in adolescents. Developed by Worling and Curwen (2001) at the Sexual Abuse Family Education and Treatment (SAFE-T) Program in Toronto, the ERASOR consists of 25 risk factors for sexual recidivism, identified through a review of the empirical literature and clinical opinion. Examples of risk factors include attitudes supportive of sexual offending, impulsivity, deviant sexual interests, environment supporting opportunities to offend, stranger victims, two or more victims, parental rejection, and so forth. As the ERASOR has only recently been developed, there has yet to be any research published on the psychometric properties of the instrument, especially its predictive accuracy with respect to sexual recidivism.

The MASORR is a clinical instrument for appraising sex offender risk for recidivism developed by Howard Barbaree at the Centre for Addiction and Mental Health (CAMH). The instrument is subdivided into four major components including offense history, antisocial personality/psychopathy, deviant sexual interests, and social competence. These variables are subjectively combined to arrive at a global pre-treatment rating of risk for sexual recidivism. Following the completion of treatment, the offender's pre-treatment rating is subjectively
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combined with information concerning the offender's level of motivation, behavior change, and the clinician's clinical impression to arrive at a post-treatment rating of risk. Having been used for several years at the CAMH, empirical research evaluating the predictive accuracy of the MASORR had yet to be published.

Barbaree, Seto, Langton, and Peacock (2001), evaluated the predictive accuracy of six risk assessment instruments (PCL-R, MnSOST, Static 99, RRASOR, VRAG, SORAG, and the MASORR) on a sample of 215 adult sex offenders followed up for an average of 4.5 years. Overall, 9% of the sample had committed new sex offenses. Despite its promise, the MASORR only modestly predicted sexual recidivism. Offense history ratings were predictive of sexual recidivism ($r = .19$, ROC area = .63), however, the remaining scale dimensions and global pre- and post-treatment ratings of risk were not significantly related to this outcome.

The SONAR is a dynamic risk/needs assessment tool for sexual recidivism developed by Karl Hanson and Andrew Harris (2000/2001) from their large-scale dynamic risk factors study. Variables that discriminated sexual recidivists from non-recidivists were differentially weighted and combined to form 9 major dynamic risk factors on the instrument. These included five relatively stable factors (intimacy deficits, negative social influences, attitudes tolerant of sexual offending, general self-regulation, and sexual self-regulation), and four acute factors (negative mood, substance abuse, anger, and victim access). Potential scores range from -4 to +14, and the offender is assigned one of five potential risk ratings ranging from low to high.

The SONAR was rated on the 208 recidivist and 201 non-recidivist offenders from the study. Recidivists scored significantly higher on the SONAR than non-recidivists (8.0
versus 5.4), and the instrument showed moderate predictive accuracy with respect to sexual recidivism ($r = .43$, ROC area = .74). The SONAR also continued to predict sexual recidivism after controlling for IQ, Static 99 scores, and the VRAG. Two important caveats are worth noting from this investigation, however: 1) The base rate of sexual recidivism was artificially inflated (> 50%) which would optimize the magnitude of the correlations with outcome; and 2) The SONAR was validated on the original construction sample that was used to identify and construct the items in it. The statistical properties of the dataset determined which items were included in the instrument and how they were to be weighted, and not surprisingly, the resulting instrument predicted sexual recidivism after being rated on the same sample. A better test of the SONAR's predictive accuracy would be to cross-validate the tool on a large and different sample of sex offenders.

In sum, several risk assessment instruments for sexual recidivism have been developed in recent years. Some instruments are purely actuarial devices such as the SORAG, RRASOR, and Static 99. Other instruments fall under the rubric of structured professional judgment as per Boer et al. (1998) such as the SVR-20, MASORR, J-SOAP, and ERASOR. Finally, other instruments are quantified, empirically-guided scales following the risk-needs assessment tradition such as the RRAS, MnSOST, and SONAR. The VRS:SO seems to fall into this final category of instruments as an empirically guided instrument that: 1) Makes an explicit distinction between static and dynamic risk factors, 2) Presents a systematic metric (i.e., stages of change) for assessing changes in risk on identified treatment targets, and 3) Is a quantified risk scale, which provides a numerical summary of the offender's risk and explicit guidelines for translating scores into summary risk ratings.
1.3 The Need for a Revision

The primary goal of the present investigation is to revise and revalidate the static portion of the VRS:SO, in order to simplify and improve on the predictive validity obtained in the first phase of the study. Although the Static 99 is a very promising actuarial instrument which has improved the accuracy of predicting sexual recidivism, it does suffer many of the same foibles that have traditionally plagued other actuarial instruments in the field (e.g., purely atheoretical, empirical focus). Barring these concerns, the Static 99 exhibits additional shortcomings. First, despite intending to be an objectively scored instrument, scoring the Static 99 still requires considerable judgment from the rater. For instance, the first item, prior sexual offenses, incorporates an extremely broad definition of what constitutes a sexual offense, such that any charge or conviction that was sexually motivated would apply.

Additional ambiguities and sources of confusion in the scoring rules, guidelines, and criteria later emerged with further use of the instrument. In response to some of these difficulties, a new and updated set of scoring guidelines have been developed by Phenix, Hanson, and Thornton (2000), adapted for the California legislature. These guidelines clarify the scoring of several of the items (e.g., prior sexual offenses), thus presumably increasing interrater reliability and reducing ambiguity. However, this relates to a second concern of the Static 99, namely, its lack of portability. For instance, since laws differ from one state to the next in the United States, different guidelines would need to be drafted in order for the Static 99 to be compatible with the legislature of each state; a clearly unfeasible option. Ideally, the scoring of an instrument should not be affected by differing legislatures, and thus be accessible for use in all states.
While the Static 99 continues to present an important contribution to the field, a new static component will be developed for the VRS:SO in replacement of it. First, all the variables will be converted to a continuous scoring format, to be rated using the same 4-point ordinal scale as seen with the dynamic items and the original VRS. While some variables may warrant a heavier weighting than others, such a task may be reserved for a future project. In the interim, a consistent weighting and scoring of the items would seem to increase the parsimony of the instrument. Secondly, some variables (namely those that have shown equivocal relationships to sexual recidivism) will be removed in their entirety, and some newer variables will be added. At least one potential candidate variable for removal includes having an additional index offense for non-sexual violence. While it has been documented that sexual offenses involving gratuitous violence can have dire implications for the probability of sexual recidivism and degree of potential harm involved (Kahn & Chambers, 1991; Maletzky, 1991), there is little evidence to directly suggest that having an additional index offense for non-sexual violence increases chances of sexual recidivism.

New variables will have well-established empirical and theoretical relationships with sexual recidivism, and be operationalized using the 4-point scale. Two particularly promising variables to consider that have been strongly linked to sexual recidivism include early onset of sexual offending or young age at first sexual offense (Hanson & Bussière, 1996/1998; Langstrom & Grann, 2000) and having diverse victim types (e.g., both adult and child victims) (Hanson & Harris, 2000). It is my hope that these changes introduced to the static portion of the instrument will improve predictive accuracy and reduce ambiguity in scoring.

The revalidation will involve randomly selecting one half of the sample for the purposes of constructing the static component, since the statistical properties of the data will
be used to operationalize some of the new items. The static items will then be revalidated through rating this portion on the other half of the sample, and correlating it with multiple recidivism criteria (i.e., sexual and non-sexual violent recidivism). Subsequent to Study 1, additional minor revisions have been made to the dynamic factors and the recidivism outcome data have been updated with an additional two years follow up. As such, the revised dynamic factors and static-dynamic scale totals will be correlated with the new outcome criteria.

As the VRS:SO demonstrated some capacity to predict sexual recidivism in the initial phase of the study, the present investigation will further extend on these previous findings through exploring the VRS:SO’s capacity to predict non-sexual violence. As the Static 99 has been demonstrated to predict both sexual and non-sexual violence elsewhere (Hanson & Thornton, 1999/2000), such an analysis would provide an interesting opportunity to replicate this finding, and further test the capacity of the dynamic portion of the instrument to predict non-sexual violence. ROC analyses will also be conducted to provide an additional test of the VRS:SO’s predictive accuracy with respect to sexual and non-sexual recidivism.

1.4 Hypotheses

1.4.1 Scale Construction and Cross-Validation

The static portion of the VRS:SO will be constructed on one randomly selected half of the sample, and subsequently revalidated using the remaining half of the sample.

1.1) The new static dimension will correlate significantly with outcome measures of sexual recidivism.

1.2) The new static dimension will be significantly correlated with the Static 99.
1.3) Using ROC analyses, the new static dimension will demonstrate strong predictive accuracy with respect to selected outcome measures of sexual recidivism (e.g., yes-no any new sexual charge or conviction).

1.4.2 Examining New Predictive Phenomena: Non-sexual Recidivism and the Stability of Prediction

2.1) The following measures of the VRS:SO will correlate significantly with outcome measures of non-sexual (i.e., violent and general) recidivism: new static component, Static 99, pre- and post-treatment dynamic scores, Criminality factor, and Treatment Compliance factor.

2.2) Using ROC analyses to examine the predictive accuracy of the VRS:SO with respect to an outcome measure of sexual recidivism (i.e., yes-no any new sexual charge or conviction), ROC values are expected to remain reasonably constant when computed across different follow-up intervals (2, 3, 5, 8, and 10+ years).
2. Method

2.1 Participants

Participants included 321 male federal sex offenders treated through the Clearwater Sex Offender Treatment Program at the Regional Psychiatric Centre (RPC, Prairies) from roughly 1981 to 1996. As this sample constitutes the same group of offenders as described in Study 1, their demographic composition is thus the same and will not be repeated here. The reader is referred to the Methods section of Study 1 for these details.

The sample was randomly divided into two subsamples for the purposes of this study: 1) 152 offenders to be used in the construction of the new static instrument; and 2) 169 remaining offenders with whom the new static scale will be cross-validated. The demographic composition of these two samples will be described below.

2.2 Materials

Two primary sets of materials were used including: 1) the Violence Risk Scale: Sexual Offender Version (VRS:SO), and 2) a data collection protocol assessing several key variables.

2.2.1 Violence Risk Scale: Sexual Offender Version (VRS:SO)

The VRS:SO is a rating scale designed to assess risk for sexual offense recidivism (see appendices A and B). It is comprised of two types of risk factors – static and dynamic. Hanson and Thornton’s (2000) Static 99 comprises the static portion, a 10-item actuarial instrument tapping variables such as violent and sex offending history, offender demographics, and victim characteristics. The revised dynamic portion includes 19 items
empirically and theoretically related to sexual offense risk (e.g., cognitive distortions, substance abuse, level of insight). These factors have the capacity to change, for instance, with the advent of treatment (e.g., sex offender programming). The instrument is further divided into two parts—pre- and post-treatment. On the pre-treatment component, the offender is rated on the static and dynamic factors prior to receiving any intervention. The post-treatment component is scored following the completion of treatment (in whole or in part). In this case, the offender is then re-rated on each of the dynamic risk factors to assess the level of change (either mitigating or exacerbating risk) that has taken place. Prochaska, DiClemente, and Norcross' (1992) transtheoretical model of the change process is used as a theoretical mechanism to evaluate pre- and post-treatment levels of change on each of the dynamic risk factors.

2.2.2 Data Collection Protocol—Key Variables Coded

A data collection protocol (see Appendix E) was drafted for the collection of several key variables, required for testing the hypotheses outlined above. Key variables germane to the current investigation included criminal history (sex offenses in particular), age upon release, age of first sex offense, marital status, sex offender type (incest, rapist, child molester, mixed), and victim characteristics (biological sex of victim and relationship to offender).

2.2.2.1 Criminal history: Prior criminal offenses included any and all charges and convictions prior to the index sentencing date. The following criminal history data were collected: 1) Prior sexual charges, 2) prior sexual convictions, 3) prior non-sexual violent
convictions, 4) total prior non-sexual convictions, and 5) total prior sentencing dates. The index offense is the most recent offense the offender was convicted for (usually a sexual offense) prior to RPC admission. Criminal records on each participant from the Canadian Police Information Centre (CPIC) were updated and recorded between August 2001 and July 2002. The coding of previous sexual offenses will be elaborated upon below.

2.2.2.2 Previous sexual offenses: This is defined as any previous arrests, charges, or convictions for a sexual offense occurring prior to the offender’s most recent (i.e., index) sex offense. This also included any person-involved (violent) offenses that may have had sexual elements or that were sexually motivated (e.g., assaulting a prostitute with the intent to rape her). This information was gathered primarily from the offender’s CPIC, although important information about juvenile sex offenses was sometimes available through file review.

2.2.2.3 Age Upon Release: The offender’s chronological age at the time of his (most recent) release on his index sentence. The computation of this variable merely involved subtracting the individual’s date of birth from his date of release.

2.2.2.4 Age of First Sex Offense: Refers to the chronological age of the offender when he was arrested, charged, or convicted for a sex offense for the very first time. Most often this variable was computed by subtracting the individual’s date of birth from the date of his first sex offense. In other cases the offender reported being arrested, charged, or convicted for sex offenses at earlier ages not included on the CPIC (e.g., juvenile sex offenses), and this information was used.
2.2.2.5 Marital Status: Referred to the offender's marital status, current to his index offense, coded into one of the following categories: never married, currently married/common-law, divorced/separated, widowed, or previously common-law.

2.2.2.6 Sex Offender Type: Offenders were coded into one of the following four categories: 1) Rapist: having exclusively adult victims, who are predominantly unrelated. 2) Child molester: having exclusively child victims, the majority of whom would be unrelated to the offender. A child is described as a male or female individual lacking secondary sexual characteristics, usually under 14 years of age. 3) Mixed: having both adult and child victims (irrespective of the biological sex of the victim), who are predominantly unrelated. 4) Incest: having predominantly related victims (see definition of a related victim below).

2.2.2.7 Victim Characteristics: The number of male, female, related, and unrelated victims were counted for each offender. Only victims involved in sex offenses resulting in an arrest, charge, or conviction were included in the coding. Information about victims of unreported sex offenses was not coded, as this information was difficult to verify (being based on self-report) and often limited in detail. In addition, many offenders are loathe to discuss any unreported sex offenses for fear of eventually being apprehended. For the purposes of the coding, a victim was considered related if she or he was a relative of the offender, sufficiently close in relationship such that marriage would normally be prohibited. This would include biological sons and daughters, stepchildren, nieces and nephews, cousins,
grandchildren, parents, grandparents and so forth. Barring such a relationship, the victim would otherwise be considered unrelated.

2.2.2.8 Recidivism: Recidivism is broadly defined as the commission of a new offense following release from custody. The release date to be used as a reference for evaluating recidivism is the most recent date on which the offender was released into the community after having received treatment services at the RPC. The following measures of recidivism were collected: 1) total new sexual charges, 2) total new sexual convictions, 3) total new non-sexual violent charges, 4) total new non-sexual violent convictions, 5) total new non-sexual convictions, 6) sentence length for first sex offense, and 7) aggregate sentence length for total sex offenses. Continuous recidivism variables were also recoded into separate binary (yes/no, 1-0) variables (with the exception of sentencing variables). All recidivism data were updated after an additional two years follow-up from the previous study (Study 1).

The use of multiple sexual recidivism dependent measures reflects two methodological issues. The first issue pertains to Doren's (1998) criticism that different operational definitions of sexual recidivism directly impact base rates. As the magnitude of predictive validity correlations are influenced by base rates, multiple definitions of recidivism were used to capture any fluctuation that may occur in the magnitude of correlations due to changing base rates. A second reason for the inclusion of multiple recidivism criteria is that the recidivism variables also reflect different types of re-offending events. For instance, the binary (yes/no) criteria refer to the probability or likelihood that the offender will commit any new sex offense, whereas the continuous measures (e.g., total new sex offenses) refer to the density or number of new offenses that are committed (a measure of
severity). In addition, other measures such as time to first sex offense and sentence length are measures of the speed and severity of recidivism, respectively.

In addition, some sexual recidivists were deemed Dangerous Offenders (DO’s) and assigned indeterminate sentences. Based on the results of Witte and DiPlacido’s (2001) study of 25 DO’s, the sentence length of each DO in the current study was estimated through substituting the average period of time served on their indeterminate sentences. The average amount of time served by a DO in Witte et al.’s (2001) sample was 12.0 years.

2.3 Procedure

2.3.1 Revision of the VRS:SO Dynamic Factors

Following the completion of the first study, the VRS:SO was adopted into experimental use in the Clearwater program to be used as part of the nursing intake assessments and risk assessments. All treatment staff were trained by the scale developers and experienced raters in the administration, scoring, and interpretation of the instrument. However, throughout the training sessions and in our use of the instrument, several rating quandaries emerged in the scoring and conceptualization of certain items. As a result of these concerns some changes were made to the item composition of the dynamic factors. We removed or modified the following items: Mental Disorder, Acute Stress, Cognitive Distortions and Attitudes Legitimizing Sexual Offending.

The Mental Disorder item was removed given the very low base rate of serious psychiatric illness in sex offender populations, and on the Clearwater Unit in particular. The item also had an extremely low endorsement rate and seemed to contribute little in evaluating an offender’s sexual offense risk or predicting his likelihood of sexual recidivating. In
addition, from our clinical experiences, seldom was the presence of a major mental disorder ever part of most sex offenders' crime cycles. While there was inevitably a significant deterioration in the individual's life functioning (e.g., relationships, substance abuse, finances) prior to offending, this usually did not include the onset of psychotic symptoms. However, for the small group of offenders for whom there was a relationship between a serious psychotic illness and sexual offending, we relocated the item to a list of possible factors to consider for critical override.

The Acute Stress variable was removed owing to it being a somewhat vague and difficult item to rate. In addition, the item was very poor psychometrically (a concern also shared with the mental disorder item) with very low item-total and inter-item correlations, poor correlations with outcome, and failing to load on any of the three aggregate dynamic factors that were derived through factor analysis.

Finally, we amalgamated the Cognitive Distortions and Attitudes Legitimizing Sexual Offending items owing to some difficulty experienced by raters in differentiating between them. In addition, the literature obscures the distinction amongst different cognitive processes in sexual offenders, tending to use the term "cognitive distortions" as a generic statement to refer to any efforts on the part of the offender to justify or legitimize his sexually abusive behavior. In this respect, the content of the two items were combined, such that the new item (called Cognitive Distortions) would assess any thought processes, attitudes, perceptions, or beliefs used by the offender to escape personal responsibility and support his offending.

In addition, the item Affective Condition Associated with Sexual Offending was relabeled Emotional Control as the newer label was considered to be less verbally
cumbersome. No other changes were made to the labeling or content of the remaining items. In sum, the scale was reduced from 19 to 16 dynamic items, thus increasing its parsimony and ideally the relevancy of the items to sexual offense risk.

2.3.2 Revision of the VRS:SO Static Factors

2.3.2.1 Participants: Construction sample.

The construction sample included 152 sex offenders randomly selected from the larger pool of 321 sex offenders included in the initial study. Overall, 67 (44.1%) of the offenders were rapists, 33 (21.7%) child molesters, 26 (17.1%) mixed offenders, and 26 (17.1%) incest offenders. In terms of ethnic background, 65.8% of the sample were Caucasian, 32.9% Native, and 1.3% of other ethnic descent. The average education level attained was 9.5 years ($SD = 3.0$). Individuals were 31.6 years of age ($SD = 9.7$) on average at the time of their index offenses, and served an average sentence length of 4.9 years ($SD = 2.4$).

2.3.2.2 Revision of static factors: Procedure and rationale.

The revision of the static portion of the VRS:SO was primarily an actuarial process in that the statistical properties of the dataset drove the process of identifying and constructing many of the items comprising the scale. This construction process can be broken down into the following seven steps: 1) Identification of potential variables to be included in the scale, 2) Coding the variables, 3) Examining the coded variables' relationship to sexual recidivism, 4) Rescaling the coded variables into a four point rating format, 5) Correlating rescaled variables with sexual recidivism, 6) Combining the rescaled variables to form the new and
revised static section, and 7) Ongoing adherence to additional psychometric considerations such as maximizing content validity and scale parsimony, and minimizing redundancy.

2.3.2.3 Step 1: Identification of potential scale variables for coding.

First, variables were considered for initial coding based on whether there was any empirical, theoretical, or conceptual support for their relationship to sexual recidivism from the literature. Potential variables were then identified based on whether they had evidenced some degree of relationship to sexual recidivism from the literature (see introduction in Study 1 for a review of this literature).

2.3.2.4 Step 2: Variable coding.

A series of static variables culled from the literature were then operationally defined as described in the Methods section above. Operational definitions were largely derived from various sources in the literature as well as the principal investigator's own clinical and research experience. These variables were then coded on the participant sample described above using the coding package presented in Appendix E.

2.3.2.5 Step 3: Examining the relationship of potential predictor variables with sexual recidivism.

After coding these static variables, their univariate relationships to several sexual recidivism criteria were examined. The variables were correlated with four sexual recidivism criteria to identify significant predictors. These four sexual recidivism outcome measures included: 1) yes/no (1-0) any new sexual charge or conviction, 2) yes/no (1-0) any new
sexual reconviction, 3) total new sexual charges and convictions, and 4) total new sexual convictions. Variables that demonstrated at least some small to moderate correlations (i.e., .10 to .15) across the criteria were rescaled into a four point rating format and re-correlated with the same criteria. The correlations between the raw variable scores and the sexual recidivism criteria are presented in Appendix F for the construction and validation samples.

**2.3.2.6 Step 4: Variable rescaling.**

After potential static variables were identified, frequency distributions were run on each of the variables and visually inspected. The raw scores on each given variable were then converted to a four point scale (0, 1, 2, 3), with higher scores on the rescaled item indicating greater severity, and higher risk for recidivism. Naturally occurring breaks points in the frequency distributions for each variable were used to convert different values of the raw variable into a 0, 1, 2, or 3-point rating on the rescaled variable. An example using the item *Prior Sex Offenses* may illustrate this process more clearly. When a frequency distribution was run on total prior sex offenses, 48.3% of the sample had 0 prior sex offenses, 23.1% had 1 prior sex offense, 17.4% had 2 or 3 prior sex offenses, and the remaining 11.2% of the sample had 4 or more prior sex offenses. Thus, individuals with 0 prior sex offenses received a score of 0, individuals with 1 prior sex offense received a score of 1, 2-3 prior sex offenses a score of 2, and 4 or more prior sex offenses a score of 3.
2.3.2.7 Step 5: Correlating rescaled variables with sexual recidivism outcome.

Each rescaled variable was then individually correlated with each of the four sexual recidivism criteria. In more cases than not, the rescaled variable actually predicted somewhat better than the raw variable.

2.3.2.8 Step 6: Incorporation of rescaled variables into the new static section.

As each variable was rescaled, and its univariate relationship to the criterion examined, the ratings on the variable were summed with the ratings on pre-existing rescaled variables. The item total was then correlated with each sexual recidivism criterion. This process continued until the rescaled variable combinations reached a ceiling level of predictive accuracy – that is, until the correlations with outcome failed to improve any further in magnitude.

In total, 8 items were constructed through this statistical process: S1 Age upon release; S2 Age at first adjudicated sexual offense; S3 Sexual offender type; S4 Prior sexual offenses; S5 Unrelated versus related victims; S6 Total victims (male and female); S7 Prior sentencing dates; and S8 Marital status. There was no specific rationale for including 8 items in the static section. Rather, the guidelines used to select, test, and ultimately incorporate the variables into the instrument determined the absolute number of items that would be included. All the rescaled variables were the summed for each offender to arrive at a composite static scale score, with potential scores ranging from a minimum of 0 to a maximum score of 24. The new static variables and scoring instructions are presented in Appendix G.
2.3.2.9 Step 7: Ongoing adherence to additional psychometric considerations.

Throughout the scale construction process, efforts were made to reduce redundancy of the items and to maximize the content validity of the instrument by including a broad and representative collection of risk variables that appeared to adequately tap the spectrum of demographic, criminal history, and offense/victim related variables predictive of sexual recidivism. An additional consideration was that the item content of the instrument should parallel the content of existing sex offender risk instruments (e.g., Static 99), at least in part (i.e., demonstrate some degree of concurrent validity). At the end of this process there were 8 items that seemed to maximize the content validity and parsimony of the instrument while minimizing redundancy.

Some further comments about the item composition of the static section also seem warranted. Although several studies have found a history of non-sexual violence (e.g., assault, armed robbery, murder) to be a significant predictor of future sexual offending (Hanson & Bussière, 1996/1998; Quinsey et al., 1995; Rice et al. 1990, 1991), such a relationship was not observed in the current sample. It is unlikely that this finding reflects an anomaly of the sample, which appears to be representative of the incarcerated sex offender population in the Prairie Region given its size, diversity, and offender composition. It is important to note that other studies have failed to find a relationship between prior non-sexual violence and sexual recidivism including Firestone et al. (1998, 1999), Prentky et al. (1997), Proulx et al. (1997), Långström and Grann (2000), and Långström (2002) among others. Nevertheless, to maximize the content validity of the instrument and its applicability to other sex offender populations, an effort was made to incorporate non-sexual offending history into the scale in some way. This was attempted by way of the prior sentencing dates.
variable, which correlated highly with prior non-sexual violent convictions \( (r = .65, p < .001) \) and prior non-sexual non-violent convictions \( (r = .84, p < .001) \). Given the high overlap between these measures, only the sentencing dates variable was included so as to reduce redundancy and maximize parsimony.
Development and Validation of the VRS:SO

3. Results

3.1 Psychometric Properties: Construction Sample

After the variables were coded and rescaled, each item was summed to arrive at a static score for each offender in the construction sample. Scores on the new static factors ranged from 3 to 22 ($M = 12.08$, $SD = 4.24$) out of a maximum of 24. The predictive accuracy of the new static scale for sexual and non-sexual recidivism was examined.

3.1.1 Sexual Recidivism

The sample was followed up an average of 10.2 years ($SD = 3.99$) after their release, with follow-ups ranging from 2.1 to 18.8 years. Overall, 36.2% of the sample was charged or convicted for a new sex offense, with an average time to failure of 4.0 years ($SD = 3.22$). The predictive validity of the new static factors and the Static 99 for the prediction of sexual recidivism was examined through Pearson correlations and ROC analyses. The new static factors were significant predictors of all measures of sexual recidivism (see Table 3.1). The Static 99 also predicted sexual recidivism, although the correlations and ROC’s tended to be somewhat smaller in magnitude than the VRS:SO. The new static factors correlated significantly with the Static 99 ($r = .62$, $p < .001$), providing evidence for concurrent validity.

3.1.2 Non-Sexual Recidivism

Overall, 36.2% of the sample received a new conviction for a non-sexual violent offense, 56.6% for any non-sexual offense, and 63.8% received any new conviction (including violent and sexual offenses). The new static factors predicted several non-sexual recidivism measures (see Table 3.2). Moreover, the Static 99 predicted some non-sexual recidivism measures, however, it failed to produce significant relationships with any non-sexual violent conviction and any non-sexual conviction.
Table 3.1

Predictive Validity Correlations and ROC Analyses for VRS:SO Static Factors and the Static 99 with Respect to Sexual Recidivism: Construction and Cross-Validation Samples

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<th></th>
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<td>( r )</td>
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<td></td>
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<td>VRS:SO Static</td>
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<td>.38***</td>
<td>.71</td>
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<td>.23**</td>
<td>.64</td>
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<tr>
<td><strong>Validation Sample</strong> (( N = 169 ))</td>
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<td></td>
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<td>VRS:SO Static</td>
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<td>.34***</td>
<td>.72</td>
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<tr>
<td>Static 99</td>
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<td>.56</td>
<td>.20**</td>
<td>.61</td>
</tr>
</tbody>
</table>

Note: *\( p < .05 \), **\( p < .01 \), ***\( p < .001 \)
Table 3.2

*Predictive Validity Correlations and ROC Analyses for the VRS:SO Static Factors and Static 99*

with Respect to Non-Sexual Recidivism: Construction and Cross-Validation Samples.

<table>
<thead>
<tr>
<th></th>
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<th>Any Non-Sexual Conviction</th>
<th>Any Reconviction</th>
<th>Total Non-Sex Violent Convictions</th>
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<td>.22**</td>
<td>.59</td>
<td>.36***</td>
</tr>
<tr>
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<td>.20**</td>
<td>.61</td>
<td>.27***</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01, ***p < .001
3.2 Scale Cross-Validation

With the goal of cross-validating the new static component of the scale, variable information pertaining to the new static factors (described above) in addition to basic demographic, psychiatric, and treatment variables were collected on the remaining 169 participants in the sample. Overall, 102 (60.4%) of the sample were rapists, 23 (13.6%) child molesters, 19 (11.2%) mixed offenders, and 25 (14.8%) incest offenders. In terms of ethnic background, 59.8% of the sample were Caucasian, 34.3% Native, 4.2% of other ethic descent, and such information was unavailable for approximately 1%. Individuals had an average of 9.7 years \((SD = 2.8)\) of education. Individuals were 29.6 years of age \((SD = 9.9)\) on average at the time of their index offenses. After the requisite information was coded, the variables were rescaled to a 4-point \((0, 1, 2, 3)\) format using the same guidelines from the construction phase of the study. Items were summed, and a series of descriptive statistics and psychometric analyses were conducted. Scores on the static factors in this sample ranged from 2 to 22 \((M = 11.96, SD = 4.47)\) out of a maximum of 24.

The two groups were compared on several demographic, criminal history, recidivism, and risk measures (see Table 3.3). Pairwise comparisons between the construction and validation samples using chi square and ANOVA yielded no significant differences with the exception of the frequency of sexual recidivism. Importantly, the mean difference in static scale scores between the construction and validation samples was not significant for either the VRS:SO \((F (1, 319) = .071, NS)\), or the Static 99 \((F (1, 121) = .121, NS)\), suggesting that the two groups were comparable in risk despite the differing base rates of sexual recidivism. As in the construction phase of the study, the correlations between the raw unscaled variables and sexual recidivism for the validation sample are presented in Appendix F.
Table 3.3

Comparison of Construction and Validation Samples on Relevant Demographic, Criminal History, Recidivism, and Risk Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Construction Sample (N = 152)</th>
<th>Validation Sample (N = 169)</th>
<th>□² or F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>%</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age at index</td>
<td>31.6 (9.7)</td>
<td>-</td>
<td>29.6 (9.9)</td>
</tr>
<tr>
<td>Education</td>
<td>9.5 (2.5)</td>
<td>-</td>
<td>9.7 (2.8)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>-</td>
<td>36.0</td>
<td>-</td>
</tr>
<tr>
<td>Never married</td>
<td>-</td>
<td>32.2</td>
<td>-</td>
</tr>
<tr>
<td>Aboriginal</td>
<td>-</td>
<td>32.9</td>
<td>-</td>
</tr>
<tr>
<td>Criminal History</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior sex offenses</td>
<td>1.48 (2.1)</td>
<td>-</td>
<td>1.12 (1.7)</td>
</tr>
<tr>
<td>Prior non-sex violence</td>
<td>1.37 (2.2)</td>
<td>-</td>
<td>1.32 (1.7)</td>
</tr>
<tr>
<td>Total prior non-sex</td>
<td>7.04 (7.7)</td>
<td>-</td>
<td>7.47 (8.7)</td>
</tr>
<tr>
<td>Recidivism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New sex charge/conviction</td>
<td>-</td>
<td>36.2</td>
<td>-</td>
</tr>
<tr>
<td>New sex conviction</td>
<td>-</td>
<td>30.3</td>
<td>-</td>
</tr>
<tr>
<td>New non-sex violent conviction</td>
<td>-</td>
<td>38.8</td>
<td>-</td>
</tr>
<tr>
<td>New non-sex conviction</td>
<td>-</td>
<td>56.6</td>
<td>-</td>
</tr>
<tr>
<td>Risk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static 99</td>
<td>4.43 (2.0)</td>
<td>-</td>
<td>4.36 (2.1)</td>
</tr>
<tr>
<td>VRS:SO static</td>
<td>12.08 (4.2)</td>
<td>-</td>
<td>11.96 (4.5)</td>
</tr>
</tbody>
</table>

Note: * p < .05
3.2.1 Sexual Recidivism

The cross-validation sample was followed up for an average of 9.77 years ($SD = 4.01$) after release with total follow-up times ranging from 2.0 to 19.0 years. In total, 25.4% of the sample were charged or convicted for a new sexual offense, with an average time to failure of 4.0 years ($SD = 3.21$). As noted above, this base rate of sexual recidivism is significantly different than the base rate reported in the construction sample ($\chi^2 = 4.35, p < .05$). Table 3.1 reports the sexual recidivism predictive validity correlations for the cross-validation phase of the study. As in the construction sample, the new static factors continued to predict all sexual recidivism quite strongly. The Static 99 significantly predicted any new sexual conviction and total new sexual convictions, but yielded non-significant relationships with any new sexual charge or conviction and total new sexual charges and convictions (see Table 3.1). Again, the static factors and the Static 99 were highly correlated ($r = .72, p < .001$).

There was a decrease in the magnitude of the correlations with recidivism for both instruments. Although the two samples did not differ in their overall scores on the instrument, the validation sample had a substantially lower base rate of sexual recidivism compared to the construction sample (25.4% versus 36.2% respectively). As validity coefficients tend to be optimized in magnitude as the base rate of the phenomenon to be predicted approaches 50%, the lower base rate of recidivism in the validation sample is likely partially responsible for attenuating the magnitude of the correlations.

3.2.2 Non-Sexual Recidivism

Overall, 33.1% of the validation sample received a new non-sexual violent conviction, 57.4% received any non-sexual conviction, and 63.9% received any reconviction
Development and Validation of the VRS:SO (including violent and sexual). The new static factors continued to predict on all measures of non-sexual recidivism. Moreover, the Static 99 predicted some non-sexual recidivism measures but did not predict non-sexual violence (see Table 3.2).

3.3 Factor Analysis

The 8 static variables and 16 dynamic variables were subjected to a factor analysis as a means of identifying latent constructs within the aggregate scale that underlie risk for sexual recidivism. All 24 variables were subjected to principle axis factoring to extract the factors and varimax rotation. No limit was set on the number of factors extracted, and factor loadings smaller than .10 were suppressed. An examination of the scree plot and the rotated sums of squared loadings (i.e., Eigenvalues) indicated that a 5-factor solution might be the most appropriate solution for the dataset. Only 5 factors had eigenvalues above 1.0, and there was a sharp break in the scree plot between the fifth and sixth component. The factor analysis was repeated using the same extraction and rotation procedures, only this time limiting the extraction to 5 factors.

The resulting 5-factor solution accounted for 49.88% of the total variance. Table 3.4 reports the factor loadings, eigenvalues, variance accounted for, and Chronbach's alphas for the solution. Each item (with the exception of Emotional Control) loaded cleanly and well above the .40 loading criterion on their respective factors with few cross-loadings, thus producing a model with simple structure. Interestingly, the dynamic and static variables loaded predominantly on separate factors. Three of the factors replicated those derived in Study 1, which would be expected given that basically the same dataset was used. However,
### Table 3.4

**Factor Loading Matrix for VRS:SO Static and Dynamic Variables.**

<table>
<thead>
<tr>
<th>VRS:SO Item</th>
<th>Sexual Deviance</th>
<th>Criminality</th>
<th>Sexual Offense History</th>
<th>Age</th>
<th>Treatment Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>D16 Deviant Sexual Preference</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1 Sexually Deviant Lifestyle</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D3 Offense Planning</td>
<td>.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D12 Sexual Offending Cycle</td>
<td>.66</td>
<td>.40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2 Sexual Compulsivity</td>
<td>.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6 Interpersonal Aggression</td>
<td>.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D13 Impulsivity</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D14 Compliance with Community Supervision</td>
<td>.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D4 Criminal Personality</td>
<td>.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S7 Prior Sentencing Dates</td>
<td>.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D10 Community Support</td>
<td>.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D11 Released to High Risk Situations</td>
<td>.46</td>
<td>.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D9 Substance Abuse</td>
<td>.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S5 Unrelated Victims</td>
<td>.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S4 Prior Sex Offenses</td>
<td>.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S6 Total Victims</td>
<td>.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S3 Sex Offender Type</td>
<td>.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1 Age at Release</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2 Age at First Sexual Offense</td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S8 Marital Status</td>
<td>.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D8 Insight</td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D15 Treatment Compliance</td>
<td>.66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D5 Cognitive Distortions</td>
<td>.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D7 Emotional Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>3.49</td>
<td>2.94</td>
<td>2.10</td>
<td>1.84</td>
<td>1.61</td>
</tr>
<tr>
<td>% Variance Accounted for</td>
<td>14.54</td>
<td>12.23</td>
<td>8.76</td>
<td>7.66</td>
<td>6.70</td>
</tr>
<tr>
<td>Alpha</td>
<td>.87</td>
<td>.80</td>
<td>.72</td>
<td>.74</td>
<td>.72</td>
</tr>
</tbody>
</table>
items were removed and modified in the dynamic scale revision, and missing data had been replaced using stepwise regression to estimate missing values. The first factor, labeled Sexual Deviance, accounted for 14.5% of the variance (eigenvalue = 3.49, alpha = .87) and paralleled the analogous factor derived from the factor analysis in Study 1. The second factor, labeled Criminality, accounted for 12.2% of the variance (eigenvalue = 2.94, alpha = .80), and also paralleled the analogous factor derived from the first study. However, Prior Sentencing Dates, an index of general criminal history, also loaded highly on this factor. The third factor, labeled Sexual Offense History, accounted for 8.8% of the variance (eigenvalue = 2.10, alpha = .74) and was comprised entirely of static items that reflected density of sexual offending history as well as victim and offender characteristics. The fourth factor, labeled Age, accounted for 7.7% of the variance (eigenvalue = 1.84, alpha = .71) and was comprised of static age-related items including age at the onset of sexual offending, age at time of release and marital status (i.e., single marital status is also linked to young age). The final factor, labeled Treatment Compliance, accounted for 6.7% of the variance (eigenvalue = 1.61, alpha = .72), and directly paralleled the analogous factor derived from the first study.

3.4 Predictive Validity Analyses: Static, Dynamic, and Scale Totals

Given the changes made to the dynamic factors and the additional two years follow up from Study 1, the predictive validity analyses were rerun on the entire sample of 321 offenders with each of the revised components of the scale. Overall, the sample was followed up an average of 10.0 years (SD = 4.01), with follow-up times ranging from 2.0 to 19.0 years.
3.4.1 Sexual Recidivism

Overall, 98 (30.5%) of the 321 offenders were charged or convicted for a sexual offense following their release, with an average time to failure of 4.0 years (SD = 3.48). Interestingly, only 79 (24.6%) of the offenders were actually convicted for a new sex offense, illustrating the fluctuating nature of recidivism base rates when the criterion is defined in a more conservative manner. The difference in the base rate of sexual recidivism using charge versus conviction was significant ($t(320) = 4.49, p < .001$). When broken down by offender group, 32.0% of rapists, 35.7% of child molesters, 42.2% of mixed offenders, and 9.8% of incest offenders were charged or convicted of a new sexual offense following their release.

Table 3.5 presents the correlations of the Static 99 and VRS:SO scale components with sexual recidivism based on the entire pool of 321 sex offenders. The correlations and ROC analyses for the new static factors and sexual recidivism were significant and substantial in magnitude. The Static 99 also continued to be a significant predictor of sexual recidivism. Finally, the modified 16-item pre-treatment and post-treatment dynamic factors and the VRS:SO total score correlated with all sexual recidivism outcome measures.

3.4.2 Relative Predictive Accuracy of Static and Dynamic Factors for Sexual Recidivism

In the first study, the relative contributions made by the Static 99 versus the dynamic factors in the prediction of sexual recidivism were examined. Similarly, in the current study, the relative predictive accuracy of the new static factors was compared to that of the post-treatment dynamic factors through hierarchical multiple regression. All four sexual recidivism criteria were used in these analyses: 1) Total new sex offenses (charges and convictions), 2) Total new sexual convictions, 3) Any sexual charge or conviction, and 4)
Table 3.5

*Predictive Validity Correlations and ROC Analyses for the Static 99 and VRS:SO*

*Scale Components with Respect to Various Sexual Recidivism Criteria*

<table>
<thead>
<tr>
<th></th>
<th>Any Sexual Charge/Conviction</th>
<th>Any Sexual Conviction</th>
<th>Total Sexual Charges/Convictions</th>
<th>Total Sexual Convictions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( r )</td>
<td>ROC area</td>
<td>( r )</td>
<td>ROC area</td>
</tr>
<tr>
<td>Static 99</td>
<td>.17**</td>
<td>.59</td>
<td>.21***</td>
<td>.62</td>
</tr>
<tr>
<td>VRS:SO Static</td>
<td>.37***</td>
<td>.70</td>
<td>.36***</td>
<td>.71</td>
</tr>
<tr>
<td>Pre-txt Dynamic</td>
<td>.19**</td>
<td>.61</td>
<td>.22***</td>
<td>.64</td>
</tr>
<tr>
<td>Post-txt Dynamic</td>
<td>.22***</td>
<td>.62</td>
<td>.25***</td>
<td>.64</td>
</tr>
<tr>
<td>Pre-txt Total</td>
<td>.30***</td>
<td>.66</td>
<td>.31***</td>
<td>.69</td>
</tr>
<tr>
<td>Post-txt Total</td>
<td>.33***</td>
<td>.68</td>
<td>.34***</td>
<td>.71</td>
</tr>
</tbody>
</table>

Note: *\( p < .05 \), **\( p < .01 \), ***\( p < .001 \)
Any sexual conviction (excluding charges). Several reputable empirical studies have successfully used dichotomous criterion variables in multiple regression analyses in the construction and validation of risk assessment schemes including Bonta, Harmon, Hann, and Cormier's (1996) revalidation of the Statistical Information on Recidivism (SIR) scale, Harris et al.'s (1993) development and validation of the VRAG, and Wormith and Goldstone's (1984) evaluation of multiple statistical prediction schemes for recidivism. In particular, the Wormith and Goldstone study is an authoritative reference demonstrating the use of binary criteria without any loss in predictive power.

Using the "Enter" method, static factor scores were entered into a regression equation on the first step, followed by the dynamic factors on the second step for each recidivism criterion. Results are summarized in Table 3.6. The standardized regression coefficients (i.e., $\beta$) can be interpreted in the same manner as correlation coefficients, and represent the unique relationship of a given predictor (static or dynamic score) to the sexual recidivism criterion.

In general, the static factors outpredicted the dynamic factors irrespective of criterion. In terms of any sexual charge or conviction, the static factors significantly predicted outcome while controlling for dynamic factor score ($\beta = .33, p < .001$), whereas the dynamic factors failed to retain a significant relationship to this criterion after controlling for the static factors ($\beta = .08, \text{NS}$). However, when the criterion was redefined as any conviction for a new sexual offense, the dynamic factors significantly predicted this outcome despite controlling for the static factors ($\beta = .12, p < .05$), although the static factors continued to evidence a stronger relationship to sexual recidivism ($\beta = .30, p < .001$). The dynamic factors approached statistical significance in the prediction of total new sex offenses ($\beta = .09, \text{NS}$), although the static factors bore a considerably stronger relationship to this outcome. Finally, the dynamic
Table 3.6

Multiple Regression Analyses: Relative Contributions of VRS:SO Static and Dynamic Factors in the Prediction of Sexual Recidivism.

<table>
<thead>
<tr>
<th>Measure</th>
<th>$R$</th>
<th>$F$</th>
<th>$p$</th>
<th>$\beta$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any new sexual charge or conviction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>.37</td>
<td>25.94</td>
<td>.001</td>
<td>.33</td>
<td>.001</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td>.08</td>
<td>.156</td>
</tr>
<tr>
<td><strong>Any new sexual conviction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>.37</td>
<td>25.30</td>
<td>.001</td>
<td>.30</td>
<td>.001</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td>.12</td>
<td>.042</td>
</tr>
<tr>
<td><strong>Total new sex offenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>.37</td>
<td>24.91</td>
<td>.001</td>
<td>.32</td>
<td>.001</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td>.09</td>
<td>.139</td>
</tr>
<tr>
<td><strong>Total new sexual convictions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>.33</td>
<td>19.85</td>
<td>.001</td>
<td>.27</td>
<td>.001</td>
</tr>
<tr>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
<td>.12</td>
<td>.045</td>
</tr>
</tbody>
</table>
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factors attained significance in the prediction of total new sexual convictions ($\beta = .12, p < .05$), despite being outpredicted by the static factors. Thus, the results of these analyses indicate that the dynamic factors appear to provide a modest amount of unique information to the prediction of sexual recidivism that is not already provided by the static factors. It is the static factors that seem to explain the large majority of the variance in sexual offense recidivism.

3.4.3 The Stability of Prediction

ROC curves tend to hold an advantage over the correlation coefficient as a measure of predictive accuracy in that they are not influenced by base rates or selection ratios (Mossman, 1994; Rice & Harris, 1995). This does not mean, however, that ROC values (i.e., area under the curve or AUC) will not be affected by changing recidivism base rates or similarly, different follow-up periods. For instance, Burt (2000) found that the AUC values of dynamic risk factors changed over longer follow-up periods. While the ROC values remained relatively stable at different points over the follow-up period (approximately 5 years), a sharp "spike" in the ROC (AUC = .80) was observed after 2-years follow-up. Burt interpreted this finding as reflecting the "dynamic," or changing, validity of the dynamic risk factors, in which case, maximum predictive accuracy occurred at two years follow-up. After this point they decline in their predictive value, possibly necessitating a re-assessment of risk. Given that "risk" is a dynamic phenomenon that will change and fluctuate over the course of therapy and through the passage of time, it seems plausible that dynamic markers of risk would also change in their capacity to predict as an individual's risk changed (for better or for worse) over time. Thus, dynamic risk factors are generally not as strong predictors of
Development and Validation of the VRS:SO

recidivism over very long follow-up periods (e.g., in excess of 5 years); rather they tend to predict recidivism better over shorter follow-ups. Burt's work suggests that these factors may have a prediction "shelf-life" of roughly two years.

In the current study, the same exercise was carried out on the static factors, dynamic factors, and VRS:SO total score. Individuals were tracked at 2 years, 3 years, 5 years, 8 years, and 10+ years from their release dates. Through this procedure, the time interval at which each sexual recidivist eventually re-offended could be specified, and the individual would be counted as a recidivist for each time interval subsequent to his re-offense date for the total duration that he was followed up. As an illustration, consider the case of a person who recidivated after 3 years but was followed up for only 5 years after his release. This individual would then be considered a non-recidivist at 2 years, and a recidivist at 3 years and 5 years follow-up. As this case was not followed any longer than 5 years, it would not be included among the cases that had been followed up 8 years and 10 or more years from their release.

Figure 3.1 graphs the ROC values for static, post-treatment dynamic, and combined post-treatment static-dynamic scale totals at 2, 3, 5, 8, and 10 or more years follow-up. As illustrated in the chart, ROC values peak at approximately 3 to 5 years follow-up for each scale component, and then decline in value with longer follow-up periods thus creating somewhat of an inverted U-shaped pattern. The static factors also demonstrate stronger overall predictive accuracy than the dynamic factors or scale total at most time points. The maximum ROC values for the static factors was .73, dynamic factors .68, and scale total .73. ROC's were also computed at different follow-up intervals for each of the aggregate dynamic factors (see Figure 3.2). A similar trend was observed as with the other scale components.
with each factor demonstrating maximum predictive accuracy at approximately 3-years follow-up. The maximum ROC values for Sexual Deviance was .60, Criminality .67, and Treatment Compliance .60. The ROC values for each VRS:SO scale component are summarized in Table 3.6.

The same exercise was carried out with correlation coefficients. The VRS:SO static, dynamic, post-treatment total and aggregate dynamic factors were each correlated with sexual recidivism outcome at 2, 3, 5, 8, and 10+ years follow-up. The same trend was observed as with the ROC’s, with correlations achieving peak predictive accuracy at approximately 3-5 years follow-up, although there was less decline over longer follow-up periods (see Table 3.6).
Figure 3.1

VRS:SO Receiver Operating Characteristic (ROC) Values as a Function of Follow-Up Time for Any New Sexual Charge or Conviction.
Table 3.6

ROC Curve Values and Correlations for VRS:SO Scale Components in the Prediction of Sexual Recidivism as a Function of Follow-Up Time for Any New Sexual Charge or Conviction

<table>
<thead>
<tr>
<th>Measure</th>
<th>2 Years</th>
<th>3 Years</th>
<th>5 Years</th>
<th>8 Years</th>
<th>10+ Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static</td>
<td>.70</td>
<td>.73</td>
<td>.71</td>
<td>.69</td>
<td>.67</td>
</tr>
<tr>
<td></td>
<td>.20**</td>
<td>.32**</td>
<td>.35**</td>
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<td>.58</td>
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<td>.29**</td>
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<tr>
<td>Treatment Compliance (post)</td>
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<td>.59</td>
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<td></td>
<td>.14*</td>
<td>.21**</td>
<td>.21**</td>
<td>.13</td>
<td>.18*</td>
</tr>
</tbody>
</table>

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

ROC values are presented in the topmost row for each measure, correlation coefficients are presented in the row immediately below for each measure. ROCs are computed using discrete measures, correlations are computed using continuous measures.
Figure 3.2

ROC Values for the VRS:SO Aggregate Factors as a Function of Follow-Up Time for Any New Sexual Charge or Conviction.
3.4.4 Risk Level Classification

Hanson and Thornton (1999/2000) organize Static 99 total scores into four possible risk levels – low, medium-low, medium-high, and high risk. As such, static, dynamic, and total scale VRS:SO scores were then subdivided into four different risk categories for the entire sample. The goal of this procedure was to establish a set of score cutoffs that would successfully discriminate among different levels of risk. Ideally there would be a linear relationship between risk level and sexual recidivism, such that there would be a corresponding increase in the proportion of offenders sexually re-offending with each successive increase in risk level (e.g., individuals falling in the high risk range would have a higher base rate of sexual recidivism than individuals falling in the medium-high risk range). The score cutoffs for each level of risk were initially determined through obtaining the quartiles for the static factors, dynamic factors, and total score separately. The first quartile would represent a low risk group, the second, medium-low, the third, medium-high, and the fourth quartile representing a high risk group. This procedure provided a systematic means of determining risk score cutoffs with roughly equal proportions of offenders falling into each risk category.

Figure 3.3 graphically illustrates the proportion of offenders sexually recidivating (new charge or conviction) across each of the risk levels established for the static, dynamic, and total scores on the instrument over approximately 10 years follow-up. The criterion of any sexual charge or conviction was chosen since this value most closely reflects the “true” base rate of sexual recidivism. For the most part, there was a successive increase in rates of sexual recidivism for each corresponding increase in level of risk. For the static component, score cutoffs for each risk level were as follows (the percentage of offenders sexually
Figure 3.3

Proportion of Offenders Sexually Recidivating by Risk Category (N = 321).
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Recidivating within each risk category are presented in parentheses: low risk 0-9, (5.8%), medium-low risk, 10-12 (31.8%), medium-high risk, 13-15 (41.4%), and high risk, ≥ 16 (47.3%). Although the recidivism base rates were substantively the same between the medium-high and high risk categories, overall, the relationship between risk level and sexual recidivism was significant using the four risk cutoffs ($\chi^2 (3) = 39.34, p < .001, r = .35$).

For the dynamic component, score cutoffs for each risk level were as follows (percentage sexually recidivating in post-treatment dynamic group in parentheses): low risk, 0-15 (19.4%), medium-low risk, 16-20 (23.1%), medium-high risk, 21-25 (38.5%), and high risk, ≥ 26 (40.7%). There was a corresponding increase in the frequency of sexual recidivism for each successive increase in risk level for both the pre-treatment dynamic ($\chi^2 (3) = 10.83, p < .05, r = .18$) and post-treatment dynamic scores ($\chi^2 (3) = 12.64, p < .01, r = .20$). Finally, score cutoffs for combined static-dynamic total scores were as follows: low risk, 0-25 (12.7%), medium-low risk, 26-32 (22.4%), medium-high risk, 33-40 (35.9%), and high risk, ≥ 41 (50.7%). Again, the relationship between risk level and sexual recidivism was also significant for pre-treatment total ($\chi^2 (3) = 25.63, p < .001, r = .28$) and post-treatment total scores ($\chi^2 = 28.57, p < .001, r = .30$).

Finally, for comparative purposes, a bar graph displaying the frequency of sexual recidivism as a function of risk category is presented in Figure 3.4 for both the revised and original VRS:SO (post-treatment total score). The data for the revised post-treatment total are the same as in Figure 3.3. However, the reader will notice a strong linear relationship between risk level and sexual recidivism for both versions of the scale, with each successive increase in risk level producing a resultant increase in the base rate or frequency of recidivism.
Figure 3.4

Proportion of Offenders Sexually Recidivating by Risk Category for the Original and Revised VRS:SO ($N = 321$).
3.4.5 Survival Analyses

The statistical technique of survival analysis graphs the cumulative proportion of individuals who recidivate over a specified time period. A given case that does not recidivate is said to "survive." At each time interval, the relative proportion of individuals who re-offend out of the total cohort of offenders who have been followed up to that time period is computed. When graphed, this produces a curve that drops off most rapidly as offenders recidivate during the first few years follow-up and then gradually tapers off when no further cases re-offend. Different curves can be computed simultaneously in order to compare the survival or failure rates across different cohorts of offenders (e.g., low risk versus medium risk versus high risk). For instance, high-risk offenders will usually have curves that drop precipitously reflecting the rapid and high rate with which they re-offend, whereas low risk offenders will usually have gently sloping curves reflecting low re-offense rates. However, over very long follow-up periods (e.g., over 10 years), survival curves may be of limited value, as one offender recidivating out of a small cohort entering a long follow-up period may produce an artificially large decrement in the curve. For instance, if 5 individuals "survived" to 15 years and then 1 person recidivated, this would produce a cumulative decrease of 20% in the number of individuals surviving from that cohort at the 15-year interval, causing the curve to fall off very sharply to create a misleading impression that a large number of individuals had re-offended.

Survival analyses were performed on the static factors, post-treatment dynamic factors, and VRS:SO post-treatment scale total using time to first sexual offense (charge or conviction) as the criterion variable. Offenders were organized into four risk levels for each scale component and survival curves were computed for each risk cohort. The curves were
also statistically compared to each other to determine if they differed significantly in their survival rates. To minimize the influence of isolated late recidivism events (as illustrated in the example above), the survival curves ended at 13 years follow-up for all analyses, when there were generally fewer than 10 offenders exposed to risk. The top chart of Figure 3.5 graphs the cumulative proportion of individuals surviving over the total follow-up period for each risk cohort on the static factors of the instrument. The overall model was significant \((\text{Wilcoxin-Gehan (3)} = 38.67, p < .001)\) indicating that the survival rates of the curves were significantly different from each another. As seen in this schematic, offenders in the medium range and high risk groups sexually recidivated at a much higher and faster rate than individuals in the low risk groups. Pairwise comparisons revealed that the survival curve of the medium-high risk group was significantly different from the low risk group \((\text{Wilcoxin-Gehan (1)} = 27.40, p < .001)\), as was the difference in the failure rate between the medium-low and low risk groups \((\text{Wilcoxin-Gehan (1)} = 15.24, p < .001)\). Similarly, the survival curve of the high risk group was significantly different from the low risk \((\text{Wilcoxin-Gehan (1)} = 35.72, p < .001)\) and medium-low risk groups \((\text{Wilcoxin-Gehan (1)} = 7.80, p < .01)\).

Similar results were obtained when survival analyses were conducted on each of the four risk cohorts with the dynamic factors (post-treatment) (see Figure 3.5 bottom chart). The overall model was significant \((\text{Wilcoxin-Gehan (3)} = 18.11, p < .001)\), indicating that the curves were substantially different from each other. Individuals in the medium-high risk group fell at a sharper and faster rate than individuals in the low \((\text{Wilcoxin-Gehan (1)} = 6.47, p < .05)\) and medium-low risk \((\text{Wilcoxin-Gehan (1)} = 4.48, p < .05)\) groups. Moreover, the high risk cohort had a significantly sharper and steeper curve than the low \((\text{Wilcoxin-Gehan (1)} = 12.53, p < .001)\) and medium-low risk groups \((\text{Wilcoxin-Gehan (1)} = 10.20, p < .01)\).
Figure 3.5

Survival Analysis: Cumulative Proportion of Individuals Sexually Recidivating by Risk Level for Static (Top Chart) and Dynamic Factors (Bottom Chart).
Survival analyses were also conducted on the three aggregate dynamic factors using both binary sexual recidivism criteria (see Figures 3.6-3.8). The top chart in each figure presents the results of survival analysis with respect to any new sexual charge/conviction, whereas the bottom chart displays the survival curves for any new sexual conviction only. High and low groups were derived through median splits on each of the factors: Sexual Deviance (low < 6, high 7+), Criminality (low < 10, high 11+), and Treatment Compliance (low < 4, high 5+). Overall, individuals scoring high on sexual deviance were sexually reconvicted at a higher and faster rate than individuals scoring low on deviance (Wilcoxon-Gehan (1) = 6.93, \( p < .01 \)), although the survival curves between high and low deviance groups did not differ for any new sexual charge/ conviction (Figure 3.6). Significantly different failure rates were noted between high and low Criminality groups for both sexual charge/conviction (Wilcoxin-Gehan (1) = 24.72, \( p < .001 \)) and sexual reconviction only (Wilcoxin-Gehan (1) = 25.58, \( p < .001 \)) (Figure 3.7). Finally, significantly different failures rates were observed between individuals scoring high and low on the Treatment Compliance Factor with respect to any sexual charge/conviction (Wilcoxin-Gehan (1) = 4.24, \( p < .05 \)), although no significant difference was observed with respect to sexual reconviction only (Figure 3.8).
Figure 3.6

Survival Analysis: Cumulative Proportion of Individuals Sexually Recidivating by High and Low Sexual Deviance Groups.

![Survival Function Graph]

Survival time to first sexual charge/conviction

![Survival Function Graph]

Survival time to first sexual conviction
Figure 3.7

Survival Analysis: Proportion of Individuals Sexually Recidivating by High and Low Criminality Groups.

Survival Function

Survival time to first sexual charge/conviction

Survival Function

Survival time to first sexual conviction
Figure 3.8

Survival Analysis: Proportion of Individuals Sexually Recidivating By Good and Poor Treatment Compliance.

Survival Function

Survival time to first sexual charge/conviction

Survival Function

Survival time to first sexual conviction
A final set of survival analyses were conducted across the four risk cohorts on the new and original VRS:SO post-treatment total (see Figure 3.9). The revised scale total (see top chart) seemed to best discriminate among the four risk groups as evidenced by the very different survival curves produced by each of them (Wilcoxin-Gehan (3) = 39.11, p < .001). The medium-high risk group of offenders sexually recidivated at a higher and faster rate than the low risk (Wilcoxin-Gehan (1) = 10.73, p < .01) and medium-low risk (Wilcoxin-Gehan (1) = 5.22, p < .05) groups. In addition, the high risk group of offenders had significantly sharper and steeper survival curves than the low risk (Wilcoxin-Gehan (10) = 27.42, p < .001), medium-low risk (Wilcoxin-Gehan (1) = 22.78, p < .001), and medium-high risk groups (Wilcoxin-Gehan (1) = 7.26, p < .01).

Survival analyses were also conducted on the original VRS:SO (i.e., 19 dynamic items and the Static 99) using the same follow-up data (see bottom chart Figure 3.9). The overall model indicated that the risk groups tended to differ significantly on their survival curves, with higher risk groups sexually recidivating at a higher and faster rate (Wilcoxin-Gehan (3) = 21.91, p < .001). Pairwise comparisons revealed significant differences in the survival curves among all the risk groups, with the only exception being the non-significant difference between the medium-high and high risk groups (Wilcoxin-Gehan (1) = 2.74, NS).

Overall, these results demonstrate that offenders classified into categories of increasing levels of risk, sexually re-offend at an increasingly faster and higher rate. In addition, the revised VRS:SO discriminates sex offenders of different risk levels at least as well, if not better, than the original version of the scale.
Figure 3.9

Survival Analysis: Cumulative Proportion of Individuals Sexually Recidivating by Risk Level with Respect to Risk Group for the VRS:SO Post-Treatment Total Score for the Revised (Top Chart) and Original (Bottom Chart) Versions.
3.5 Non-Sexual Recidivism

Overall, 115 (35.8%) individuals were convicted for a new non-sexual violent offense, 183 (57%) for any non-sexual offense, and 205 (63.9%) received any new conviction. The average time to first conviction (any type) was 2.6 years ($SD = 2.69$). Table 3.8 reports the correlations for the VRS:SO scale components and Static 99 with respect to non-sexual recidivism. In the overall sample, the new static factors predicted all non-sexual recidivism measures. The Static 99 also predicted the same criteria, although the correlations were somewhat smaller in magnitude. The pre-treatment and post-treatment dynamic factors faired considerably worse in the prediction of non-sexual recidivism, yielding, with few exceptions, essentially non-significant relationships with most non-sexual outcome criteria. Finally, the pre-treatment and post-treatment total scores bore largely significant but much more modest relationships with the various non-sexual recidivism criteria, likely by virtue of the static factors comprising one third of the total score.
Table 3.8

**Predictive Validity Correlations and ROC Analyses for the Static 99 and VRS:SO with Respect to Non-Sexual Recidivism**

<table>
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<tr>
<th>Measure</th>
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<th>Any Non-Sexual Recidivism</th>
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<th>Total Non-Sex Convictions</th>
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</thead>
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<td>( r )</td>
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<td>( r )</td>
<td>ROC area</td>
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<td>.59</td>
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Note: \( *p < .05, **p < .01, ***p < .001 \)
4. Discussion

The purpose of Study 2 was to revise the VRS:SO and reevaluate its psychometric properties. Efforts were made to construct and cross-validate a new actuarial static measure to supplant the Static 99 in addition to making modifications to the dynamic component. The predictive accuracy of the revised scale was reevaluated with respect to several sexual and non-sexual recidivism criteria over an additional follow-up period of 2 years. Additional psychometric analyses were also performed (e.g., factor analysis).

4.1 VRS:SO Revision and Cross-Validation

The new static component of the VRS:SO was developed using actuarial procedures on a randomly selected half of the sample. Scale items were selected and incorporated into the instrument based on whether they had been established to predict sexual recidivism from prior research, and if they evidenced a significant statistical relationship to sexual recidivism in the construction sample. Items were then rescaled, and scale totals were correlated with multiple sexual recidivism criteria. The same procedure was performed on the remaining half of the sample. The static factors bore very strong relationships to sexual recidivism as demonstrated in correlation and ROC analyses, although there was a typical reduction in predictive accuracy observed in the validation sample statistics. This drop may be partly attributable to the lower base rate of sexual recidivism in the validation sample, as the same pattern of shrinkage was also observed with the Static 99. It is worth noting, however, that the construction and validation samples were otherwise highly similar with respect to demographic composition, offending history, follow-up time, risk measure score, and rate of
non-sexual recidivism. Nevertheless, further cross-validation is required in other sex offender populations.

4.2 Prediction of Sexual Recidivism: Comparing “Old” and “New”

The predictive accuracy of the Static 99 and VRS:SO was evaluated with respect to sexual and non-sexual recidivism on the entire sample of 321 sex offenders over a 10-year follow-up. Due to the difference observed in the base rates of sexual recidivism as a function of the operational definition used (i.e., charge versus conviction only), different definitions of sexual recidivism were employed in the predictive validity analyses. These analyses were important given the additional follow-up time from Study 1, and the additional revisions made to the instrument. There was considerable consistency between Studies 1 and 2 in the data coding, analytic procedures, and results. Thus, there is little reason to believe that new recidivists are substantively different from recidivists identified in the previous investigation.

The new static factors were consistently associated with all outcome measures of sexual recidivism, and demonstrated improved predictive accuracy over the Static 99. This is an important finding, as the revision appeared to result in an increment, rather than a loss of, predictive power. Given the high concurrent validity (and hence, similarity) between these two measures, what revisions may have contributed to an improvement in predictive accuracy? One possible reason may be that the static component places less weighting on non-sexual offending history than the Static 99. For instance, 30% of the Static 99’s scale content consists of non-sexual items. Although such factors have been shown to predict sexual recidivism (Hanson & Bussière, 1996/1998), findings throughout the literature provide mixed support, including the present study. A second reason for the improved predictive accuracy may be the incorporation of additional salient static factors proven to be
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predictive of sexual recidivism but not included in the Static 99. Such items include age of first sexual offense and sexual offender type. A third possibility may reflect the fact that several dichotomous variables on the Static 99 were incorporated into a continuous rating format on the VRS:SO. These include items pertaining to victim characteristics, marital status, relationship to victim, age at release, and prior sentencing dates. The continuous variables would have greater variance and be differentially weighted than the dichotomous predictors, which could result in a stronger relationship to outcome.

The revised dynamic factors also demonstrated no loss of predictive power from the original 19-item version, even with an increase in follow-up time, which may paradoxically undermine the magnitude of predictive validity correlations. For instance, this can occur as lower risk offenders eventually recidivate over a longer temporal period when given the opportunity to do so, thereby weakening the linear relationship between scores on the instrument and sexual recidivism (e.g., low scores would be less strongly linked to low rates of sexual recidivism). The revisions increased the parsimony of the instrument through reducing the number of factors, and reduced scale redundancy by amalgamating overlapping variables (e.g., Cognitive Distortions and Attitudes Legitimizing Sexual Offending). Most importantly the revisions incurred no loss, and in some cases even an increase, in predictive accuracy through the removal of variables that bore tenuous relationships to sexual recidivism and had poor psychometric properties. For instance, the Acute Stress and Mental Disorder variables had low item-total correlations and were not predictive of any sexual recidivism outcome measures. In addition, the base rate of serious mental illness among sex offender populations is extremely low and is of questionable etiologic significance in most offenders' offense cycles.
4.3 The Utility of Dynamic Factors in Sex Offender Risk Assessment and the Need for Reappraisals of Risk

The static factors consistently outpredicted the dynamic factors across a series of regression analyses, irrespective of the outcome measure of sexual recidivism used. Part of this may be due to the fact that static factors (in some cases) have been found to be better long-term predictors of recidivism. However, ROC analyses across different follow-up periods revealed consistently higher AUC values for the static factors, even at shorter follow-up periods. As such, most of the variance appears to be explained by the static component.

One could justifiably criticize the value of assessing dynamic risk items and incorporating them into risk instruments when static factors demonstrate superior predictive power and the inclusion of dynamic factors appears to contribute little additional information to predicting sexual recidivism. Why even bother with dynamic factors?

The utility of dynamic factors can be found in their capacity to inform the treatment process and assess changes in risk. First, dynamic factors identified as problematic (or criminogenic) for an offender can be targeted for treatment. There is empirical research support for the effectiveness of cognitive behavioral treatment programs in reducing sexual recidivism (e.g., Gallagher et al., 1999), hence one can conceivably argue that an instrument that informs treatment has value. Secondly, dynamic factors can also assess changes in risk (for better or worse) as a result of treatment. While change scores were found to have small relationships to recidivism in Study 1 and there was no examination of the reliability in rating change, there seems to be room for optimism. For instance, post-treatment rated dynamic factors evidenced larger correlations with all sexual recidivism criteria than the pre-treatment
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component. Although the differences were small (and not statistically tested for significance), this finding was in the expected direction and may be construed as a promising start in our efforts to systematically assess changes in risk. As our understanding of the change process improves, we hope to continue to fine-tune and improve our application of the Stages of Change Model to offender risk assessment.

Finally, as an offender’s risk for sexual recidivism can change over time and life experience (e.g., therapy) for better or for worse, this entails the need for ongoing reappraisals of risk. The fluctuating ROC values of the dynamic (and even static) variables, indicates that scale scores may be optimally predictive for only a few years after an offender’s release. For instance, old sex offending attitudes may re-emerge, community support may drop off, vigilance for possible high risk situations may decrease, and self-destructive sexual habits may be rekindled during periods of stress. As such, reevaluations of risk every 6 months to 2 years during an offender’s supervision in the community may be warranted to improve post-release adjustment. With ongoing reassessments of risk, beginning signs of deterioration may be detected early enough in order for prompt intervention to be administered to prevent possible further deterioration and relapse.

4.4 Future Revisions of the VRS:SO

The validation of the VRS:SO will always be an ongoing project and the instrument will continue to be revised to reflect changes and new developments in the research literature and risk assessment technology. Potential areas for revision include the addition of new dynamic factors, developing an acute dynamic subsection or supplement to the instrument, and furthering the development of the post-treatment ratings of change.
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First, to improve on the instrument’s content validity and thus representatively sample the domain of potential dynamic risk factors, two new potential factors include Intimacy Deficits and Negative Social Influences. The empirical literature has linked an incapacity for intimate sexual relationships to the etiology of sexual offending and has been shown to be a poor prognostic indicator of outcome. For instance, Hanson and Harris (1998/2000) found recidivistic sex offenders were more likely to have significant intimacy deficits compared to non-recidivists. These researchers have since incorporated intimacy deficits into a stable dynamic risk item on the SONAR (Hanson & Harris, 200/2001). Bumby and Hansen (1997) also found intimacy deficits, fears of intimacy, and feelings of loneliness to be positively correlated with sex offending history. Finally, most sex offender programs target intimacy deficits for treatment in some capacity, and given its relationship to sexual recidivism and offending history, it seems to be a viable treatment target. It seems plausible that establishing a harmonious and stable romantic relationship (or at least attaining the capacity for this) would bode well for successful community reintegration.

Hanson and Harris (1998/2000) also found negative social influences to predict sexual recidivism. It too seems plausible that associating with others who lead an antisocial lifestyle, espouse pro-offense attitudes, and who are chronically exposed to high risk situations, could substantially increase risk for sexual recidivism. Moreover, Hanson and Scott (1996) found that having a peer network of sex offenders predicted involvement in future sex offending, and the Psychology of Criminal Conduct (PCC) model (Andrews & Bonta, 1998) identifies criminal peers as one of the big four covariates of criminal activity. Although there seems to be some overlap between negative social influences and the Community Support and Released to High Risk Situations items, this does seem to be a
viable potential candidate to be included in future versions of the scale. Although associating with negative social influences (e.g., other sex offenders) would be considered a high risk situation for relapse, this example has not been included in the rating instructions for either the Community Support or High Risk Situations variables.

The difference between stable and acute dynamic factors appears to be an important one made by Hanson and Harris (1998/2000). Thus, a second potential area for revision includes incorporating acute dynamic factors into the VRS:SO in some capacity. This may occur in the form of a separate checklist or community rating scale (e.g., to be rated by parole officers), since the time of the rating would be more proximal to any potential sex offense given that the offender is already in the community. An imminent sex offense is, by definition, what an acute risk factor is designed to predict. Some very good acute risk factors have been identified by Hanson and Harris and incorporated into the SONAR such as victim access, substance intoxication, and negative affect (e.g., anger, loneliness).

A third potential area to consider for revision includes the post-treatment dynamic section of the instrument. This would include improvements in conceptualizing and rating the nuances of change on each of the dynamic factors for each stage of change. With continued applications to different sex offender populations and settings, new examples of various manifestations of change for different dynamic factors may be observed and incorporated into the scale.

4.5 Future Research Considerations

It is important to state that not all aspects of the VRS:SO have been validated. Research needs to replicate the findings generated from Studies 1 and 2 with other sex
offender populations from different geographic settings. Future work will also have to address the possible differential predictive validity of the scale and selected risk factors with different sex offender subtypes. Will the VRS:SO cross-validate well when tested with different populations in different jurisdictions? Will the predictive validity of the static factors generalize upon further cross-validation, given that they were built from the statistical properties of the dataset? What is the inter-rater reliability of the VRS:SO static and dynamic components? How reliably can change be rated, and is the assessment of change valid across different sex offender populations and jurisdictions? How can we better conceptualize the nuances of change (via Prochaska’s model) across each of the dynamic factors?

There is also a great need for a true predictive validity study with complete pre- and post-treatment ratings and a reasonable minimum follow-up period (e.g., 3-5 years). It will also be important to evaluate non-archival ratings of the VRS:SO – how does the VRS:SO rated via file compare against ratings incorporating the interview schedule? Might they differentially predict or vary in terms of their reliability?

4.6 Limitations of the Present Study

Although efforts were made to maximize the methodological rigor of the current study, there were, nevertheless, some potential shortcomings that may limit the generalizability of its findings. One drawback of the current study is its retrospective nature. The instruments included in the present study were rated from archival information sources that were 5, 10, and sometimes more than 15 years old. Offenders were then tracked via their CPIC’s following their release from prison. Thus, the current investigation is not a “true” predictive validity study, which would be one that is prospective in nature and entails making
a present day rating of the offender on an instrument (or battery of instruments), and then following him or her up in the community upon release.

A second disadvantage that is endemic to recidivism research concerns the use of official criminal records (i.e., CPIC) as a means of obtaining recidivism data. A commonly cited concern about the use of official criminal records is that the majority of sex offenses go unreported (Doren, 1998; Furby et al., 1989), and thus the use of official records inevitably underestimates the true base rates of sexual recidivism. One effort to redress the problem of the underreporting of offenses is to use increasingly liberal definitions of recidivism (e.g., charges versus convictions; Prentky et al., 1997). In addition, other researchers (e.g., Marshall et al., 1991) have resorted to accessing other “unofficial” information sources (e.g., victims advocacy agencies) as a means of obtaining a more accurate estimate of the true base rates of sexual recidivism.

A third potential concern reflects the use of purely actuarial procedures in the development of the new static section of the instrument. Items were ultimately included in the instrument based on whether they bore significant statistical relationships to sexual recidivism in the construction sample. The content of the items, in turn, reflected the statistical properties of the sample. While this may also be a virtue in light of the overwhelming support for the superior predictive accuracy of actuarial instruments over subjective clinical judgment (e.g., Bonta et al., 1998; Grove et al., 2000; Hanson & Bussière, 1996/1998), it also presents unique disadvantages. For instance, the manner in which the items are scaled and weighted may not generalize very well to another population of offenders or a different dataset. However, the advantages presented by an actuarial approach
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(e.g., increased reliability, improved predictive accuracy) appear to outweigh such potential costs.

Finally, although separate construction and validation samples were used in order to develop and validate the static component of the instrument, the sex offenders in both samples were from the same database and were treated at the same facility. In other words, they were from the same population. Thus, future work will need to cross-validate this portion of the instrument (as well as the dynamic factors) on a different population of sex offenders, for instance from other institutions in the Prairie Region and from other jurisdictions. The RRASOR, for instance, was developed and validated from 7 different sex offender databases from Canada, The United States, and the United Kingdom (Hanson, 1997).
STUDY 3: USE OF THE PCL-R TO APPRAISE RISK IN SEX OFFENDER POPULATIONS: EXAMINING THE RELATIONSHIPS AMONG PSYCHOPATHY, SEXUAL DEVIANCE, AND RECIDIVISM

1. Literature Review

Psychopathy, sometimes referred to as dissocial personality disorder, sociopathy, or antisocial personality disorder, is a serious personality syndrome with devastating social consequences (Hart, Hare, & Forth, 1994). Psychopathy is a clinical syndrome marked by a constellation of affective, interpersonal, and behavioral characteristics. Affectively, psychopaths are emotionally shallow, selfish, callous, and lack any remorse or genuine compunction for their wrongdoings. Interpersonally, psychopaths are charming, glib, socially facile, deceitful and manipulative, and incapable of forming stable affective bonds. Behaviorally, psychopaths are irresponsible, impulsive, and lack realistic long terms goals. They tend to lead unstable nomadic lives, often exploiting the good faith and charity of others.

Although many different assessment techniques and methods have been used previously to assess psychopathy (see Hart, Cox, & Hare, 1995 for a review), the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) and its screening version (PCL-SV; Hart et al., 1995), are the most psychometrically sound and widely used instruments for this purpose today. The PCL-R is an operationalization of a set of 16 criteria outlined by Hervey Cleckley in his original book, The Mask of Sanity (Cleckley, 1943). It is a 20-item symptom-construct rating scale comprised of two oblique factors (Hare, 1991). Factor 1 reflects the interpersonal and affective characteristics of psychopathy and includes items such as a callous lack of empathy, absence of guilt or remorse, pathological lying, manipulativeness,
superficiality and grandiosity. Factor 2 is labeled chronic antisocial behavior and includes items such as impulsivity, irresponsibility, prior release failure, early conduct problems, and poor behavioral controls. Total scores range form 0 to 40, with increasing scores reflecting the extent to which an individual resembles the prototypical psychopath. A score of 30 is generally used as the cutoff for a diagnosis of psychopathy.

Although only originally intended to be a research scale to reliably diagnose psychopathy for the purpose of laboratory research (Hare, 1980; 1996), perhaps serendipitously, the instrument was later found to be strong predictor of violent and general criminal recidivism. PCL-R scores have been strongly associated with violations of conditional release (Hart, Kropp, & Hare, 1988; Wong, 1984), general criminal recidivism (Harris & Rice, 1995; Harris, Rice, & Cormier, 1991; Rice & Harris, 1992; 1995; Serin & Amos, 1995) and recidivistic violence (Harris et al., 1991; Harris, Rice, & Quinsey, 1993; Grann, Langstrom, Tengstrom, & Kullgren, 1999; Rice, Harris, & Quinsey, 1990; Serin, 1996; Serin & Amos, 1995; Strand, Belfrage, Fransson, & Levander, 1999).

In a recent meta-analysis of 32 psychopathy recidivism studies, Hemphill, Hare, and Wong (1998) found significant mean weighted correlations between PCL-R scores and general criminal recidivism \( r = .27 \), violent recidivism \( r = .27 \), and sexual recidivism \( r = .23 \). Gendreau, Goggin, and Smith (2002) conducted a recent and more comprehensive meta-analysis that included over 50 published and unpublished data sets, comparing the predictive accuracy of the Level of Services Inventory (LSI) and the PCL-R with respect to violent and general recidivism. Although their findings were somewhat more conservative than Hemphill et al.’s, they nevertheless found the PCL-R to be a strong and significant predictor of both violent (mean weighted \( r = .21 \)) and general (mean weighted \( r = .23 \))
recidivism. Psychopaths have also been found to begin their criminal careers earlier (Hare & McPherson, 1984; Hare, 1996), commit a greater variety of violent crimes (Hare & McPherson, 1984; Serin, 1991), and amass more institutional misconducts (Wong, 1984).

1.1 Psychopathy in Sex Offender Populations

Early work examining the relationship between psychopathy and prior criminal behavior found that although psychopaths were more likely to have amassed greater numbers and variety of violent crimes, they were no more likely to have a history of sexual assault than non-psychopathic offenders (Hare & McPherson, 1984). Possibly, unlike many sex offenders, whose arsenal of illegal behavior is often limited to their sex crimes, psychopaths are broader and more criminally diverse, equally as likely to capitalize on any opportunity that presented itself whether it be forging a check, robbing a grocery store, or sexually assaulting a woman or child.

Consistent with this hypothesis, research exploring the prevalence of psychopathy among rapist subtypes have found psychopaths most likely to be opportunistic offenders—that is, impulsive, criminalized individuals who tend to capitalize on chance opportunities when they sexually offend (e.g., sexually assaulting a lone woman in a house when committing a break and enter). For instance, Brown and Forth (1997) classified a sample of 60 incarcerated rapists according to the Massachusetts Treatment Center Revised Rapist taxonomy (MTC-R3) developed by Prentky and Knight (1991). Thirty five percent of the sample met the PCL-R criteria for psychopathy. Psychopaths were more likely than non-psychopaths to be opportunistic rapists (52% and 26% respectively), and the pervasive angry subtype (29% and 15% respectively). Non-psychopaths were most likely to be non-sadistic
sexual subtypes (i.e., using minimal force, main intention being sexual gratification). Opportunistic rapists also had the highest PCL-R scores of the rapist subtypes. Similarly, in a sample of 60 incarcerated rapists, Barbaree, Seto, Serin, Amos, and Preston (1994) found opportunistic (and sadistic) rapists to have the highest PCL-R scores in comparison to other rapist subtypes classified according to the MTC-R3.

It seems that the sex crimes of psychopaths are most likely to be opportunistic in nature, and generally lack the planning and premeditation not uncommonly found with other rapist and sex offender subtypes (e.g., child molesters, incest offenders). Studies have reported wide-ranging base rates of psychopathy among different sex offender types. For instance, Serin, Malcolm, Khanna, and Barbaree (1994) found only 10% of their sample of 65 sex offenders met the PCL-R criteria for psychopathy. Rapists tended to have higher overall PCL-R scores than child molesters, and were also more likely to meet the diagnostic criteria for psychopathy (12% and 8% respectively). In a sample of 229 sex offenders, Porter, Fairweather, Drugge, Hervé, Birt, and Boer (2000) obtained a 26.6% base rate of psychopathy. Psychopathy was found to be most highly represented in mixed offenders (64%) and rapists (35.9%), and much less commonly among incest offenders (6.3%) and child molesters with any extrafamilial victims (9.4%). And as mentioned above, Brown and Forth reported a 35% base rate of psychopathy in their sample; however, as this was a pure rapist sample, this is entirely consistent with the base rates reported by Porter et al.

1.2 Psychopathy and Risk For Sexual Offense Recidivism

Several studies have also found psychopathy to be a robust predictor of sexual offense recidivism in many sex offender populations. For instance, in a sample of 54
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convicted rapists followed up for 46 months, Rice, Harris, and Quinsey (1990) found PCL-R scores to be a strong predictor of subsequent sexual conviction ($r = .31$). Some years later, Quinsey, Rice, and Harris (1995) developed an actuarial scale (the Sex Offender Risk Appraisal Guide) for the assessment of sexual recidivism, which was validated on a sample of 178 child molesters and rapists. PCL-R scores were significant predictors of sexual recidivism ($r = .23$), enough to warrant inclusion in the scale as a heavily weighted item. Moreover, in a meta-analysis of 61 sex offender recidivism studies, Hanson and Bussee (1998) found a small to moderate correlation between a diagnosis of antisocial personality (which is distinct from, but related to psychopathy) and sexual recidivism ($r = .14$).

Firestone, Bradford, McCoy, Greenberg, LaRose, and Curry (1999) followed up a sample of 251 incest offenders for an average of 6.7 years. In total, 6.4% of the offenders were charged or convicted for a new sex offense. Incest offenders who committed new sex offenses had higher PCL-R scores than non-recidivists. Finally, Hanson and Harris (2000) obtained similar findings when they examined the relationships between myriad static and dynamic risk variables and sex offense recidivism in a sample of 208 recidivist and 201 non-recidivist sex offenders, evenly divided among rapists, boy-victim child molesters, and girl-victim child molesters. Information was gathered from interviews with 60 parole officers and a review of each study participant's files. Sex offense recidivists not only had substantially higher PCL-R scores than non-recidivists (23.4 and 16.7 respectively), but significantly more recidivists also qualified for a diagnosis of psychopathy (20.5%) than non-recidivists (8.0%).

However, a growing body of studies recently conducted have failed to find a relationship between psychopathy and sexual recidivism. For instance, in a 4.5 year follow-up study of 215 sex offenders, Barbaree, Seto, Langton, and Peacock (2001) found PCL-R
scores to be weakly related to sexual recidivism ($r = .09$, ROC area = .61), although psychopathy continued to be a strong predictor of serious (i.e., all violent offending) and any general recidivism. Firestone, Bradford, McCoy, Greenberg, Curry, and Larose (1998) examined a variety of risk factors potentially linked to sexual recidivism in a sample of 86 convicted rapists followed up nearly 8-years after their release. Few of the risk factors were found to successfully discriminate between sexual recidivists and non-recidivists, and mean PCL-R scores were identical between the two groups (which would yield an equivalent $r = .00$). Sjostedt and Långström (2002) did a comparative evaluation of four different risk assessment instruments (including the PCL-R) in a sample of 51 Swedish rapists who underwent court-ordered pre-sentence psychiatric assessments. Offenders were followed up an average of 92 months, during which 20% of the sample were reconvicted for a new sexual offense. As in Barbaree et al., PCL-R scores were found not to be related to sexual reconviction ($r = -.12$, ROC area = .45). Finally, Långström and Grann (2000) evaluated several risk factors for sexual recidivism in a sample of 46 Swedish young sex offenders who underwent court-ordered psychiatric assessments. After a 5-year follow up, 20% of the youths had been convicted for a new sex offense. Again, PCL-R scores failed to predict subsequent sexual reconviction, although the instrument continued to be a strong predictor of general recidivism.

Other lines of research suggest that psychopathy may impact sex offense risk in other ways. For instance, Monahan and Steadman (1994) argue that “dangerousness” should be disaggregated into three separate components – risk factors (i.e., variables that predict outcome), harm (i.e., the amount and degree of harm being predicted), and risk level (i.e., the probability that violence will occur). Using this scheme, psychopathy can be construed as
one of several risk factors predicting sexual offense recidivism, with higher scores on the PCL-R increasing a given offender’s probability of committing a new sex offense. The above discussion briefly examined the relationship of psychopathy to sexual offense recidivism in this manner, but what of the relationship between psychopathy and potential level of harm? Firestone, Bradford, Greenberg, and Larose (1998), and Firestone, Bradford, Greenberg, Larose, and Curry (1998) explore this issue further in a pair of studies focusing on homicidal sex offenders (i.e., who have either murdered, or attempted to murder, their victims). Firestone et al. (1998a) first compared a sample of 48 homicidal sex offenders to a comparison group of 50 incest offenders on several demographic, criminal history and offense-related variables, and measures of psychiatric functioning (including the PCL-R). Homicidal sex offenders were found to have substantially higher PCL-R total (mean 26.6), Factor 1, and Factor 2 scores than the incest offenders (mean total 18.7). In a related study, Firestone et al. (1998b) compared a group of 17 homicidal extrafamilial child molesters to a sample of 35 nonhomicidal extrafamilial child molesters, using a similar set of measures outlined in their previous study. Again, homicidal child molesters received significantly higher PCL-R total (mean 28.7), Factor 1, and Factor 2 scores, than the nonhomicidal child molesters (mean total 16.6).

These studies provide preliminary evidence to suggest that more dangerous sex offenders display higher levels of psychopathy. Offenders whose sex offenses are characterized by gratuitous violence, torture, mutilation, and eventually murder tend to be more psychopathic than sex offenders whose offenses (although amply heinous), lack these elements.
1.3 Psychopathy, Sexual Deviance, and Sexual Recidivism

In a recent review of the psychopathy-recidivism literature, Hare (1999) asserts that psychopathy and sexual deviance (especially sadism) present a particularly serious and "deadly" combination. The violence of psychopaths tend to be cold-blooded, instrumental and predatory in nature. Motivated by the instrumental desire for sexual gratification, acts of rape and child molestation represent a means of placating the psychopath's sordid desires. Some research evidence suggests that sexually sadistic rapists do tend to be more psychopathic than other rapist subtypes. For instance, Barbaree, Seto, Serin, Amos, and Preston (1994) found sadistic rapists and opportunistic (i.e., impulsive) sex offenders to have higher PCL-R scores than other, less sadistic and opportunistic, subtypes. Serin, Malcolm, Khanna, and Barbaree (1994) also found PCL-R scores to be significantly correlated with phallometric measures of deviant sexual arousal in a heterogeneous sample of sex offenders ($r = .28$), suggesting that more sexually deviant offenders were also more psychopathic. The relationship between psychopathy and sexual deviance appeared to be particularly strong for extrafamilial child molesters in this study. Given the high recidivism base rates of psychopathy and the psychopath's penchant for violence, it would seem that psychopathic individuals with a predilection for deviant sexual stimuli would be at exceptionally high risk for sexually recidivating and committing serious physical and psychological harm against their victims.

Rice and Harris (1997) were among the first researchers to empirically examine the impact of psychopathy and sexual deviance on sex offense recidivism, in a sample of 288 incarcerated sex offenders. Using survival analysis, the authors found that non-deviant psychopaths, non-deviant non-psychopaths, and deviant non-psychopaths sexually re-
offended at approximately the same pace over the course of a 10-year follow-up; however, a significant interaction was observed between psychopathy and sexual deviance. The survival curve of deviant psychopaths fell precipitously, as deviant psychopaths failed much more rapidly and at a higher rate than the three comparison groups.

Since Rice and Harris (1997), at least two other investigations have examined the links amongst psychopathy, sexual deviance and recidivism. For instance, Serin, Mailloux, and Malcolm (2000) phallometrically tested and administered the PCL-R to 55 federally incarcerated rapists and child molesters. Over the course of a 7-year follow up, 13.2% of the offenders were convicted for a new sexual offense. Serin et al. performed a median split on PCL-R and deviance scores to create the same four extreme groups as in Rice and Harris (1997), and then ran survival analyses on each of the groups with respect to general recidivism (any reconviction). Individuals in the high deviance/high psychopathy extreme group had significantly worse survival times and recidivated at a faster rate than individuals in the three remaining groups. Unfortunately, perhaps owing to the low base rate of sexual recidivism, no survival analyses were conducted for sexual recidivism.

Finally, Gretton, McBride, Hare, O'Shaugnessy, and Kumka (2001) examined the relationship between psychopathy and multiple indices of recidivism in a sample of 220 young offenders in an outpatient sex offender treatment program. Youths were administered the PCL-YV and phallometrically tested, and then followed up approximately 55 months after the cessation of treatment. Overall, 15% of the youths were charged or convicted of a new sexual offense. PCL-YV scores were only weakly linked to sexual recidivism ($r = .09$), although when youths were classified into low, medium, and high PCL-YV groups, youths in the high risk group had significantly higher sexual re-offense rates. This finding was
Development and Validation of the VRS:SO corroborated by survival analyses in which high psychopathy youths were found to have a higher rate of sexual failures than youths in the other PCL-YV groups; however, after controlling for age and offense history PCL-YV scores no longer contributed significantly to sexual offense outcome. Finally, youths were subdivided into high/low sexual deviance and PCL-YV groups and compared on their recidivism rates using survival analyses. None of the four groups differed from one another with respect to re-offense rates or survival times for sexual recidivism; however, high deviant/high psychopathy youths failed at a significantly higher and faster rate than youths in the other three groups for general recidivism, as per Serin et al. (2000).

In sum, the preponderance of the research literature indicates a consistent small to moderate relationship between psychopathy and sexual offense recidivism across a variety of sex offender populations including rapists, child molesters, and incest offenders. However, the construct of psychopathy appears to be a more robust and better established predictor of non-sexual (i.e., violent and general) recidivism. In addition, the base rates of psychopathy among sex offenders also appears to parallel the base rates reported in most institutional populations (i.e., 15% to 30%), with the disorder appearing most prevalent among rapists and mixed offenders. Further, it appears that the sex offenses of psychopathic sex offenders tend to be most frequently characterized by chance or opportunity, and also to a lesser degree, by gratuitous violence and sadism. Finally, the extant literature has demonstrated some degree of interaction between psychopathy and sexual deviance on risk for recidivism. Only one study (Rice & Harris, 1997) thus far has found psychopathy and phallometrically tested sexual deviance to potentiate an offender's risk for sexual recidivism. However, the two other studies that have explored the psychopathy-deviance-recidivism link (Gretton et al., 2001;
Serin et al., 2000) have found sexually deviant psychopaths to have a markedly poorer survival rate with respect to violent or general recidivism.

1.4 Purpose of the Present Study:

Predicting Sexual Recidivism: Relative Contributions of Psychopathy and the VRS:SO

First, the relative contributions of the VRS:SO factors and psychopathy in predicting sexual recidivism will be examined. The literature reviewed above indicates that a fairly consistent, robust, and significant relationship exists between the PCL-R and sexual recidivism, and that psychopaths are particularly high risk for sexual recidivism when they have a predilection for deviant stimuli (e.g., children). Based on Rice and Harris' findings, the interaction of psychopathy and sexual deviance (as measured by the VRS:SO Sexual Deviance factor) will be evaluated in terms of their combined impact (i.e., high psychopathy, high sexual deviance) on sexual offense recidivism. Moreover, another set of analyses will examine the contributions of psychopathy to sexual recidivism. First, the direct relationship between the PCL-R and sexual recidivism will be examined. The strength of this relationship will then be re-evaluated in three separate analyses after controlling for: 1) aggregate VRS:SO score; 2) Criminality factor score; and 3) Sexual Deviance factor score. In turn, the relationship between the VRS:SO and sexual recidivism will be examined after controlling for the PCL-R.
1.5 Hypotheses: Prediction of Sexual Offense Recidivism: The Contributions of the VRS:SO Sexual Deviance and Criminality Factors, and Psychopathy

1) PCL-R scores will correlate significantly with outcome measures of sexual recidivism.

2) Using Receiver Operating Characteristic (ROC) analyses, the PCL-R will demonstrate strong predictive accuracy with respect to outcome measures of sexual recidivism.

3) The PCL-R will not continue to predict sexual recidivism after statistically controlling for the following: Static 99, Criminality factor, and dynamic scores.

4) VRS:SO pre- and post-treatment total scores will continue to predict sexual recidivism after controlling for PCL-R score.

5) Psychopaths scoring highly on the Sexual Deviance factor will evidence significantly higher rates of sexual offense recidivism than psychopaths scoring low on Sexual Deviance.
2. Method

2.1 Participants

Participants included 113 male federal sex offenders who received treatment services at the Clearwater Sex Offender Treatment Program, at the Regional Psychiatric Centre (RPC) (Prairies) from roughly 1980 to 1995. The sample represented a randomly selected subsample of offenders from a larger database of 321 sex offenders. Offender groups were stratified such that rapists, child molesters, mixed, and incest offenders were proportionately represented in the smaller subsample. Overall, 52 (46%) of the sample were rapists, 19 (16.8%) child molesters, 20 (17.7%) mixed offenders, and 22 (19.5%) incest offenders. Individuals were 31.1 years of age ($SD = 9.1$) on average at the time of their index offenses and were serving an average sentence of 5.0 years ($SD = 2.4$). The ethnic breakdown of the sample was 63.7% Caucasian, 34.5% Native, and 1.2% other ethnic descent. The majority of the sample (43.3%) was single or had never been married, 32.7% divorced/separated, and 23.9% currently common-law/married. Individuals had an average of 9.8 years ($SD = 2.8$) education.

2.2 Materials

The materials consisted of the Violence Risk Scale Sexual Offender Version (VRS:SO) (revised version), the Psychopathy Checklist Revised (PCL-R), and a data collection protocol assessing several key variables.

2.2.1 Violence Risk Scale: Sexual Offender Version (VRS:SO)

The VRS:SO is a rating scale designed to assess risk for sexual offense recidivism (see appendices A and B). It is comprised of two types of risk factors – static and dynamic.
The static portion is an 8-item actuarially derived measure that taps variables such as sexual and non-sexual offending history, offender demographics, and victim characteristics. The dynamic portion includes 16 items empirically and theoretically related to sexual offense risk (e.g., cognitive distortions, substance abuse, level of insight). These factors have the capacity to change, for instance, with the advent of treatment (e.g., sex offender programming). The instrument is further divided into two parts – pre- and post-treatment. On the pre-treatment component the offender is rated on the static and dynamic factors prior to receiving any intervention. The post-treatment component is scored following the completion of treatment (in whole or in part). In this case, the offender is then re-rated on each of the dynamic risk factors to assess the level of change (either mitigating or exacerbating risk) that has taken place. Prochaska, DiClemente, and Norcross’ (1992) transtheoretical model of the change process is used as a theoretical mechanism to evaluate pre- and post-treatment levels of change on each of the dynamic risk factors.

2.2.2 Psychopathy Checklist-Revised (PCL-R)

See description in literature review and Appendix D. A psychopath is defined as any individual receiving a score of 30 out of 40 or greater on the PCL-R. Any individual receiving a score falling below this cutoff is generally considered a non-psychopath. In past investigations, a cutoff of 25 has occasionally been used when file information alone was used to score the instrument, since the interpersonal and affective characteristics may be underrated without the interview component (Wong, 1988). However, given the potential for a low base rate of psychopathy in this sample, a more lenient cutoff (i.e., 25) is used in
further analyses. Psychopathy diagnosis will be treated as a binary variable for these analyses (1-0, psychopath/non-psychopath).

The dimensionality of the construct of psychopathy has been the focus of debate. Whereas the PCL-R is clearly a dimensional instrument (providing a score representing the extent to which the individual resembles the prototypical psychopath), scores on the PCL-R are frequently used to divide individuals into the discrete categories of psychopath versus non-psychopath. Some researchers (e.g., Hare, 1996; Harris & Rice, 1995) have argued that psychopaths are a discrete class and have used complex taxometric analyses to support the use of a 25 or 30-point cutoff on the instrument. Further, some researchers have divided inmates rated on the PCL-R into low, medium, and high psychopathy groups, with the “high” psychopathy scorers representing the true psychopaths (e.g., Hart et al., 1988). While the categorical-dimensional debate has yet to be satisfactorily resolved in the psychopathy literature, psychopath/non-psychopath extreme groups using the 25 or 30-point cutoff are routinely used for data analytic purposes.

2.2.3 Data Collection Protocol

A data collection protocol (see Appendix E) was drafted for the collection of several key variables, required for testing some of the hypotheses outlined above.

2.2.3.1 Criminal history.

Information was gathered on the following criminal history variables: prior sexual charges, sexual convictions, non-sexual violent convictions, non-sexual non-violent convictions, and prior sentencing dates. The index offense is the most recent offense the offender was convicted of prior to RPC admission. Criminal records on each participant from
the Canadian Police Information Centre (CPIC) were updated and recorded between August 2001 and April 2002.

2.2.3.2 Recidivism.

Recidivism is broadly defined as the commission of a new offense following release from custody. The release date to be used as a reference for evaluating recidivism is the first date on which the offender was released into the community after having received treatment services at the RPC. The following measures of recidivism were collected: 1) total new charges for a sexual offense, 2) total new convictions for a sexual offense, 3) total new convictions for a violent offense, 4) total new non-sexual convictions. Continuous measures of recidivism were also recoded into binary outcome variables. Finally, sentence length for the first sex offense and aggregate sentence length for total sex offenses were recorded as indexes of the severity of recidivism, and time to first sex offense was recorded as an index of the rapidity of sexual recidivism.

2.3 Procedure

Each of the 321 offenders from the overall pool were rated on the entire VRS:SO (revised) from a previous investigation (Study 2), including both pre- and post-treatment components. In the current study, the stratified subsample of participants were rated on the PCL-R on the basis of information from their institutional files. Information was accessed primarily through the Offender Management System (OMS), a computerized database that maintains an accumulating dossier of information on each inmate across the entire country. No participants were directly involved in the investigation. All PCL-R’s were rated by the
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principle investigator, who had previously received extensive training in the administration and scoring of the instrument. Twenty-five PCL-R's had been rated on the same individuals by two trained research assistants from a previous study, and these ratings demonstrated satisfactory inter-rater reliability with PCL-R ratings on the current sample (ICC = .84). In addition, the data collection protocol was rated by the principle investigator in its entirety on the entire sex offender sample.
3. Results

3.1 Psychopathy Base Rates and Descriptive Statistics

Twenty eight (24.8%) offenders in the sample met the diagnostic criteria for psychopathy using the 25-point cutoff recommended by Wong (1988) when the PCL-R is rated via file review only. When broken down by offender type, 34.6% of rapists, 35% of mixed offenders, 13.6% of incest offenders and 0% of child molesters met the PCL-R criteria for psychopathy. PCL-R total scores ranged from 5 to 34 (\(M = 19.5, SD = 7.2\)), Factor 1 scores 0 to 15 (\(M = 6.0, SD = 3.3\)), and Factor 2 scores 0 to 17 (\(M = 10.0, SD = 4.3\)).

3.2 Factor Analysis

The 20 items of the PCL-R were subjected to factor analysis in an effort to replicate the 2-factor structure of the instrument found by other researchers (Hare, 1980, 1991; Templeman & Wong, 1988). Given that research has demonstrated the two factors to be correlated at approximately \(r = .50\), the dataset was subjected to principle axis factoring to extract the two factors, with direct oblimin rotation to force an oblique solution. A minimum loading criterion of .30 was used for the analysis. Overall, a two-factor solution with simple structure emerged, with items loading highly on a single factor and no cross-loadings (see Table 3.1). The two factors accounted for 32.8% of the total variance and replicated the factor structure found by past researchers. The first factor paralleled Factor 2 (chronic antisocial lifestyle) (eigenvalue 3.66, \(\alpha = .83\)) accounting for 17.1% of the variance. All 9 original Factor 2 items loaded above the .30 cutoff on this factor, in addition to the Criminal Versatility item (which ordinarily does not load in the original model). The second factor paralleled Factor 1 (interpersonal and affective characteristics) (eigenvalue 3.34, \(\alpha = .80\))
**Table 3.1**

**PCL-R Item Factor Loadings**

<table>
<thead>
<tr>
<th>PCL-R Item</th>
<th>Factor 2</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impulsivity</td>
<td>.746</td>
<td></td>
</tr>
<tr>
<td>Proneness to Boredom/ Need for Stimulation</td>
<td>.686</td>
<td></td>
</tr>
<tr>
<td>Irresponsibility</td>
<td>.682</td>
<td></td>
</tr>
<tr>
<td>Parasitic Lifestyle</td>
<td>.602</td>
<td></td>
</tr>
<tr>
<td>Revocation of Conditional Release</td>
<td>.553</td>
<td></td>
</tr>
<tr>
<td>Criminal Versatility</td>
<td>.550</td>
<td></td>
</tr>
<tr>
<td>Poor Behavioral Controls</td>
<td>.532</td>
<td></td>
</tr>
<tr>
<td>Early Behavior Problems</td>
<td>.477</td>
<td></td>
</tr>
<tr>
<td>Lack of Realistic, Long-term Goals</td>
<td>.430</td>
<td></td>
</tr>
<tr>
<td>Juvenile Delinquency</td>
<td>.330</td>
<td></td>
</tr>
<tr>
<td>Many Short-term Marital Relationships*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Promiscuity*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Remorse or Guilt</td>
<td></td>
<td>.783</td>
</tr>
<tr>
<td>Glib/Superficial Charm</td>
<td></td>
<td>.644</td>
</tr>
<tr>
<td>Grandiose Sense of Self-Worth</td>
<td></td>
<td>.624</td>
</tr>
<tr>
<td>Pathological Lying</td>
<td></td>
<td>.597</td>
</tr>
<tr>
<td>Callous/Lack of Empathy</td>
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<td>.557</td>
</tr>
<tr>
<td>Conning/Manipulative</td>
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<td>.518</td>
</tr>
<tr>
<td>Doesn't Accept Responsibility</td>
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<td>.490</td>
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<tr>
<td>Shallow Affect</td>
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<td>Eigenvalue</td>
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<td>3.34</td>
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<tr>
<td>Variance Accounted for</td>
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<td>15.66%</td>
</tr>
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</table>

*Failed to load above .30 loading criterion
accounting for 15.7% of the variance. All 8 original Factor 1 items loaded above .45 on this factor. Finally, two items, Short-Term Marital Relationships and Sexual Promiscuity, failed to load above the cutoff criterion on either factors, as per the original model. The two factors were correlated highly ($r = .41$) and the scale showed good internal consistency ($\alpha = .83$).

3.3 Convergence of the PCL-R and VRS:SO

PCL-R total, Factor 1, and Factor 2 scores were correlated with the three aggregate factors from the dynamic component, Static 99, static factor total, pre- and post-treatment dynamic factor total, and combined pre- and post-treatment scale total, to assess the convergent validity of the VRS:SO with psychopathy. Tables 3.2 and 3.3 summarize the convergent validity correlations in the form of a correlation matrix. Four sets of findings are of primary interest. First, the Sexual Deviance factor failed to correlate with the PCL-R total and factor scores, suggesting that there is little relationship between psychopathy and sexual deviance (e.g., deviant sexual interests, sexual compulsivity). Second, the Criminality Factor correlated highly with all components of the PCL-R, especially Factor 2 indicating that both factors seem to be tapping an antisocial, criminalized lifestyle. Thirdly, the Treatment Compliance factor, which taps attitudes and cognitions supportive of sexual offending, a lack of insight, and poor receptiveness to treatment, correlated highly with all components of the PCL-R, especially Factor 1. Such a relationship seems plausible, given that individuals scoring high on Factor 1 would tend to accept little responsibility for their offending, engage in extreme denial or minimization, and engage in behaviors counterproductive to the therapeutic process (e.g., lying, manipulation). Finally, the PCL-R exhibited good convergent validity with the Static 99, static factor total, and pre-treatment dynamic factor total.
Table 3.2

*PCL-R Convergent Validity Correlations with VRS:SO Factors (N = 321)*

<table>
<thead>
<tr>
<th></th>
<th>PCL-R Factor 1</th>
<th>PCL-R Factor 2</th>
<th>Sexual Deviance</th>
<th>Criminality</th>
<th>Treatment Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-R Factor 1</td>
<td>.41*</td>
<td>.76*</td>
<td>.14</td>
<td>.51*</td>
<td>.47*</td>
</tr>
<tr>
<td>PCL-R Factor 2</td>
<td></td>
<td>.88*</td>
<td>-.09</td>
<td>.71*</td>
<td>.29*</td>
</tr>
<tr>
<td>PCL-R Total</td>
<td></td>
<td>-.00</td>
<td>.75*</td>
<td>.44*</td>
<td>.27*</td>
</tr>
<tr>
<td>Sexual Deviance</td>
<td></td>
<td></td>
<td>.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.53*</td>
</tr>
</tbody>
</table>

Note: * p < .001
Table 3.3

*PCL-R Convergent Validity Correlations with the Static 99 and the VRS:SO*

<table>
<thead>
<tr>
<th></th>
<th>PCL-R Factor 2</th>
<th>PCL-R Total</th>
<th>Static 99</th>
<th>VRS:SO Static</th>
<th>Pre-txt Dynamic</th>
<th>Post-txt Dynamic</th>
<th>Pre-txt Total</th>
<th>Post-txt Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-R Factor 1</td>
<td>.41</td>
<td>.76</td>
<td>.35</td>
<td>.23</td>
<td>.47</td>
<td>.55</td>
<td>.45</td>
<td>.50</td>
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<tr>
<td>PCL-R Factor 2</td>
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<td>.24</td>
<td>.33</td>
<td>.42</td>
<td>.41</td>
<td>.45</td>
<td>.45</td>
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<td>PCL-R Total</td>
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<td>.52</td>
<td>.55</td>
<td>.52</td>
<td>.55</td>
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<td>.36</td>
<td>.33</td>
<td>.55</td>
<td>.53</td>
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<td>.39</td>
<td>.74</td>
<td>.75</td>
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<td>Pre-txt Dynamic</td>
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<td>.89</td>
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<tr>
<td>Post-txt Dynamic</td>
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<td></td>
<td></td>
<td>.88</td>
<td>.92</td>
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<tr>
<td>Pre-txt Total</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>.98</td>
<td></td>
</tr>
</tbody>
</table>

Note: All correlations = \( p < .001 \)
3.4 Recidivism Descriptive Statistics

The sample was followed up an average of 10.1 years ($SD = 4.0$) after their release, with total follow up times ranging from 2.1 to 18.0 years. Overall, 40 (35.4%) offenders were charged or convicted for a new sexual offense, 33 (29.2%) were convicted (excluding charges) for a new sexual offense, 51 (45.1%) were convicted for a new non-sexual violent offense, and 65 (57.5%) were convicted for any new non-sexual offense. The average time to failure for a new sex offense was 4.1 years ($SD = 4.5$), and for any reconviction, 2.7 years ($SD = 2.6$).

3.4 Prediction of Sexual Recidivism

3.4.1 Correlational analyses.

PCL-R scores were correlated with multiple recidivism criteria, and where possible, ROC analyses were conducted. Table 3.4 summarizes the predictive validity correlations and ROC analyses (area under the curve) for the PCL-R total, Factor 1 and Factor 2. Overall, a small relationship between psychopathy and sexual recidivism was observed. Correlations between PCL-R total scores and sexual recidivism approached significance ($p < .10$) with respect to all sexual recidivism outcome measures. The same general findings were obtained with respect to Factor 1’s relationship to sexual recidivism with most correlations approaching or attaining significance. On the other hand, correlations between Factor 2 scores and sexual recidivism criteria failed to approach significance.
Table 3.4

**PCL-R Predictive Validity Correlations and ROC's with Sexual Recidivism Criteria**

<table>
<thead>
<tr>
<th></th>
<th>Any Sexual Charge/Conviction</th>
<th>Any Sexual Conviction</th>
<th>Total Sexual Charges/Convictions</th>
<th>Total Sexual Convictions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( r )</td>
<td>ROC</td>
<td>( r )</td>
<td>ROC</td>
</tr>
<tr>
<td>PCL-R Factor 1</td>
<td>.18(^{†})</td>
<td>.55(^{†})</td>
<td>.16</td>
<td>.55</td>
</tr>
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<td>PCL-R Factor 2</td>
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<td>.57</td>
<td>.11</td>
<td>.54</td>
</tr>
<tr>
<td>PCL-R Total</td>
<td>.18(^{†})</td>
<td>.61</td>
<td>.16(^{†})</td>
<td>.60</td>
</tr>
</tbody>
</table>

Note: \(^{†}\) \( p < .10 \), \(^{*}\) \( p < .05 \)
3.4.2 Regression analyses.

A series of multiple regression analyses were conducted to examine the predictive accuracy of the PCL-R while controlling for the Static 99 and the various components of the VRS:SO including the static factors, post-treatment dynamic scores, post-treatment total scores, and the Sexual Deviance and Criminality Factors. These analyses were conducted through standard multiple regression using three dependent measures of sexual recidivism: 1) binary criterion: yes/no any sexual charge or conviction, 2) binary criterion: yes/no any sexual conviction, and 3) continuous criterion: total new sexual charges and convictions. Two different binary criteria were used given that the base rates of sexual recidivism differed considerably between the two, and could impact their relationships to the predictor variables.

3.5.2.1 Regression Analyses: Yes/No Any Sexual Charge/Conviction

The same statistical procedures were used for each regression analysis across all sexual recidivism outcome measures, with PCL-R total score being entered into the regression equation on the first step using the "Enter" method, followed by the Static 99 or VRS:SO measure on the second step. Each measure's unique relationship to sexual recidivism was then evaluated through examining the magnitude and significance level of the standardized regression coefficient (β), which can be interpreted in the same manner as a correlation coefficient (Howell, 1996).

The binary criterion of any new sexual charge or conviction was used in the first set of analyses. The PCL-R's unique relationship with sexual recidivism was examined after controlling for the Static 99, VRS:SO static factors, post-treatment dynamic factors, post-treatment total score, Sexual Deviance factor, and Criminality factor. Table 3.5 presents the
Table 3.5

*Multiple Regression Analyses: Relative Contributions of the PCL-R, Static 99, and VRS:SO in the Prediction of Any New Sexual Charge/Conviction*

<table>
<thead>
<tr>
<th>Linear Combination</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$F$</th>
<th>$P$</th>
<th>$\beta$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-R</td>
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<td></td>
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<td></td>
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<tr>
<td>Static 99</td>
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<td>3.63</td>
<td>.030</td>
<td>.12</td>
<td>NS</td>
</tr>
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<td></td>
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<tr>
<td>PCL-R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VRS:SO</td>
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<td>8.58</td>
<td>.001</td>
<td>.34</td>
<td>.001</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCL-R</td>
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<tr>
<td>VRS:SO</td>
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<td>.04</td>
<td>NS</td>
</tr>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PCL-R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VRS:SO</td>
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<td>.08</td>
<td>4.94</td>
<td>.009</td>
<td>.26</td>
<td>.017</td>
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<td>PCL-R</td>
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<tr>
<td>Sexual Deviance</td>
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<td>NS</td>
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<td>PCL-R</td>
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<td>.152</td>
</tr>
<tr>
<td>Criminality</td>
<td>.19</td>
<td>.04</td>
<td>1.94</td>
<td>.148</td>
<td>-.04</td>
<td>NS</td>
</tr>
</tbody>
</table>
Development and Validation of the VRS:SO

complete results of these analyses. First, the PCL-R’s relationship to sexual recidivism was reduced to non-significance when controlling for either static measure (Static 99 or VRS:SO static), although the VRS:SO static factors continued to predict after controlling for the PCL-R. However, neither the post-treatment dynamic nor the PCL-R significantly predicted sexual recidivism when their independent relationships were examined. The PCL-R’s relationship to sexual recidivism also decreased after controlling for VRS:SO total score, while the aggregate scale total maintained a significant relationship, although arguably this is due to the static factors. Finally, the Sexual Deviance factor did not significantly predict outcome, although the PCL-R’s relationship to this sexual recidivism criterion approached significance. Moreover, the relationship of the PCL-R total score to sexual recidivism was actually improved after controlling for the Criminality factor, whereas the Criminality factor failed to yield any independent relationship to this outcome.

3.5.2.2 Regression Analyses: Yes/No Any New Sexual Conviction

The second set of analyses merely used a more conservative criterion measure of sexual recidivism – any new sexual conviction. Complete results from this set of analyses are presented in Table 3.6. As above, standard multiple regression was used to evaluate the unique relationships of the PCL-R to sexual recidivism after controlling for the Static 99, and selected VRS:SO measures. The independent relationships of the PCL-R and risk measures to any sexual conviction largely paralleled the findings above. The PCL-R still yielded a negligible relationship to this measure of recidivism after controlling for both static-actuarial measures, although again, both static measures maintained significant independent relationships to outcome. The post-treatment dynamic factors performed better using the
Table 3.6

**Multiple Regression Analyses: Relative Contributions of the PCL-R, Static 99, and VRS:SO in the Prediction of Any New Sexual Conviction**

<table>
<thead>
<tr>
<th>Linear Combination</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$F$</th>
<th>$p$</th>
<th>$\beta$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-R Static 99</td>
<td>.29</td>
<td>.08</td>
<td>4.93</td>
<td>.009</td>
<td>.26</td>
<td>.011</td>
</tr>
<tr>
<td>PCL-R VRS:SO Static</td>
<td>.38</td>
<td>.14</td>
<td>9.03</td>
<td>.001</td>
<td>.36</td>
<td>.001</td>
</tr>
<tr>
<td>PCL-R VRS:SO Dynamic</td>
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<td>.05</td>
<td>2.85</td>
<td>.062</td>
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<td>.105</td>
</tr>
<tr>
<td>PCL-R VRS:SO Total</td>
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<td>6.77</td>
<td>.002</td>
<td>.34</td>
<td>.002</td>
</tr>
<tr>
<td>PCL-R Sexual Deviance</td>
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<td>.026</td>
<td>.20</td>
<td>.037</td>
</tr>
<tr>
<td>PCL-R Criminality</td>
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<td>.03</td>
<td>1.50</td>
<td>NS</td>
<td>.19</td>
<td>NS</td>
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</tbody>
</table>
more conservative criterion although still falling somewhat short of significance, while the PCL-R's relationship appeared to be substantially smaller in magnitude. A similar finding was observed with respect to VRS:SO total score. Finally, the Sexual Deviance factor and PCL-R total score significantly predicted any new sexual conviction in combination. Interestingly, both constructs made independent contributions to the prediction of sexual recidivism, although only the Sexual Deviance factor demonstrated a significant relationship ($\beta = .20, p < .05$). Moreover, the addition of the Sexual Deviance factor contributed a significant amount of incremental variance in the prediction of sexual recidivism, $\Delta R^2 = .033$, $F$ change $(1, 110) = 3.88, p = .051$. On the other hand, neither the Criminality factor nor the PCL-R independently predicted sexual recidivism.

3.5.2.3 Regression Analyses: Total New Sexual Charges and Convictions

In the third and final set of multiple regression analyses, the continuous criterion of total new sexual charges and convictions (a measure of the quantity or density of sexual re-offending) was used to examine unique contributions of the PCL-R while controlling for the Static 99 and selected VRS:SO measures. A complete summary of these results is presented in Table 3.7. As observed in the two preceding sets of analyses, the PCL-R failed to offer any unique contribution to predicting sexual recidivism after controlling for the Static 99 and VRS:SO static factors, while these measures still retained significant relationships. The PCL-R also evidenced minimal relationship to this outcome after controlling for post-treatment dynamic and VRS:SO scale total scores. Finally, the PCL-R and Sexual Deviance combination also predicted total new sex offenses, $R = .26, R^2 = .07, F (2, 110) = 3.98, p < .05$, with the Sexual Deviance factor significantly predicting total sex offenses after
Table 3.7

Multiple Regression Analyses: Relative Contributions of the PCL-R, Static 99, and VRS:SO in the Prediction of Total New Sexual Charges and Convictions

<table>
<thead>
<tr>
<th>Linear Combination</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$F$</th>
<th>$p$</th>
<th>$\beta$</th>
<th>$p$</th>
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<tbody>
<tr>
<td>PCL-R Static 99</td>
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<td>.14</td>
<td>9.07</td>
<td>.001</td>
<td>.37</td>
<td>.001</td>
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<td>PCL-R VRS:SO Static</td>
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<td>.18</td>
<td>11.83</td>
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<td>.42</td>
<td>.001</td>
</tr>
<tr>
<td>PCL-R VRS:SO Dynamic</td>
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<td>.06</td>
<td>3.38</td>
<td>.038</td>
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<td>.050</td>
</tr>
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<td></td>
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<td>.001</td>
</tr>
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<td>PCL-R Sexual Deviance</td>
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<td>.026</td>
</tr>
<tr>
<td>PCL-R Criminality</td>
<td>.16</td>
<td>.03</td>
<td>1.39</td>
<td>NS</td>
<td>.13</td>
<td>NS</td>
</tr>
</tbody>
</table>

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controlling for psychopathy, although the PCL-R's relationship to this criterion decreased slightly. Neither Criminality nor PCL-R score demonstrated significant unique relationships to sexual recidivism.

3.5.3 Relationship of Factor 1 to Sexual Recidivism After Controlling for Selected Risk Measures

The relationship of Factor 1 score to sexual recidivism was also examined after controlling for selected sex offender risk assessment measures. It was surmised that Factor 1 would evidence relationships to sexual recidivism that were at least as large in magnitude as the PCL-R total score, after controlling for these measures. This in turn, would provide further evidence that it is Factor 1 which largely accounts for the PCL-R’s relationship to sexual recidivism. For the sake of brevity, only two outcome measures were used: 1) any sexual charge/conviction, and 2) total sexual charges/convictions. The analyses were run using the same procedures outlined above, which consisted of standard multiple regression using the “Enter” method. In each analysis, Factor 1 score was entered in the first step, followed by the respective risk measure in the second step. Complete results for both outcome measures are presented in Table 3.8.

Overall, Factor 1’s relationship to sexual recidivism was similar or larger in magnitude than the PCL-R total score, irrespective of the outcome measure used or the risk measure controlled for. A comparison between Tables 3.5/3.7 and Table 3.8 illustrates the similar magnitudes of the standardized regression coefficients (β) of Factor 1 and the PCL-R total score. Moreover, Factor 1’s relationship to sexual recidivism remained constant, even after controlling for Factor 2. The results provide further evidence that Factor 1 accounts for
Table 3.8

*Relative Contributions of Factor 1, the Static 99, and VRS:SO in the Prediction of Sexual Recidivism.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Dependent Variable: Any Sexual Charge/Conviction</th>
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<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$R$</td>
<td>$R^2$</td>
<td>$F$</td>
<td>$p$</td>
<td>$\beta$</td>
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</tr>
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<td>8.96</td>
<td>.001</td>
<td>.10</td>
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<td></td>
<td>.34</td>
<td>.001</td>
</tr>
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<td>Factor 1</td>
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<td>.04</td>
<td>2.20</td>
<td>.12</td>
<td>.13</td>
<td>NS</td>
</tr>
<tr>
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<td></td>
<td>.09</td>
<td>NS</td>
</tr>
<tr>
<td>Factor 1</td>
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<td>.08</td>
<td>4.99</td>
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<td>.05</td>
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<tr>
<td>Post-txt Total</td>
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<td>1.94</td>
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<td>.07</td>
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<td>.04</td>
<td>NS</td>
</tr>
<tr>
<td>Factor 1</td>
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<td>.03</td>
<td>1.92</td>
<td>.15</td>
<td>.16</td>
<td>.16</td>
</tr>
<tr>
<td>Criminality</td>
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<td></td>
<td></td>
<td></td>
<td>.03</td>
<td>NS</td>
</tr>
<tr>
<td>Factor 1</td>
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<td>.04</td>
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<td>.14</td>
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<table>
<thead>
<tr>
<th>Measure</th>
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much of the limited relationship observed between the PCL-R sexual recidivism. It is also noteworthy to mention that Factor 1 failed to significantly predict any measures of sexual recidivism after controlling for selected aggregate risk measures, although it maintained stronger relationships to outcome while controlling for Sexual Deviance and Criminality.

3.6 Prediction of Non-Sexual Recidivism

3.6.1 Correlational analyses.

The PCL-R was also correlated with multiple non-sexual recidivism criteria, and where possible, ROC analyses were conducted. Table 3.9 presents a summary of these findings. Consistent with much of the extant literature, PCL-R total score was a strong and significant predictor of all non-sexual recidivism criteria including indices of non-sexual violence and general recidivism. Factor 1 was significantly associated with some binary outcome measures of non-sexual recidivism (i.e., any non-sexual violence, any reconviction), but failed to yield significant relationships with all remaining measures. Finally, Factor 2 scores were significantly associated with all non-sexual outcome criteria, including non-sexual violent and general recidivism, and clearly accounted for much of the relationship between the PCL-R total score and non-sexual re-offense measures.

3.6.2 Regression analyses: General non-sexual and violent recidivism.

The relationship between psychopathy and violent and general recidivism was tested after controlling for age and criminal history through hierarchical multiple regression analyses. Age at release and prior non-sexual convictions evidenced strong univariate relationships with non-sexual reconviction, and the age variable and prior violent convictions
Table 3.9

*PCL-R Predictive Validity Correlations and ROC's with Non-Sexual Recidivism Criteria*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Any non-sex violent conviction</th>
<th>Any non-sex conviction</th>
<th>Any new conviction</th>
<th>Total non-sex violent convictions</th>
<th>Total non-sex convictions</th>
<th>Total new convictions</th>
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<td>ROC ( r )</td>
<td>ROC ( r )</td>
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<td>( r )</td>
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<td>.12</td>
<td>.53</td>
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<td>.68</td>
<td>.34***</td>
<td>.66</td>
<td>.35***</td>
<td>.67</td>
</tr>
</tbody>
</table>

Note: * \( p < .05 \), ** \( p < .01 \), *** \( p < .001 \)
Development and Validation of the VRS:SO

strongly predicted future non-sexual violence. In the first model, age at release and prior non-sexual convictions were entered into a multiple regression equation using the “Enter” method, followed by the PCL-R, with total new non-sexual convictions as the criterion to be predicted. The overall model strongly predicted non-sexual recidivism ($R = .31, F (3, 109) = 3.74, p = .013$), and the PCL-R continued to predict ($\beta = .21, p < .05$) after controlling for age upon release and prior non-sexual offenses.

Two additional analyses using hierarchical multiple regression were performed as a means of examining the relationship of psychopathy to non-sexual violence after controlling for age at release and total prior violent convictions. The first regression was conducted with total new violent convictions as the dependent variable. Although the overall model predicted total violent reconvictions quite strongly ($R = .43, F (3, 109) = 8.43, p < .001$), the PCL-R’s relationship to non-sexual violence was reduced to nonsignificance ($\beta = .12, \text{NS}$) after controlling for these variables. In the second regression a dichotomous dependent variable (yes/no any non-sexual violent conviction) was used and age at release and prior violent convictions were entered in the first step, followed by PCL-R total score in the second step. The resulting regression equation predicted any new violent conviction quite strongly ($R = .44, F (3, 109) = 8.86, p < .001$), with the PCL-R retaining a significant relationship with violent recidivism ($\beta = .29, p < .01$) after controlling for age and prior violent convictions.

3.7 The Relationship of Psychopathy and Sexual Deviance to Recidivism

In order to examine the relationship between psychopathy, sexual deviance, and recidivism a median split was performed on the Sexual Deviance factor of the VRS:SO. The Sexual Deviance factor is a 5-item composite factor comprising the following items:
Sexually, Deviant Lifestyle, Sexual Compulsivity, Offense Planning, Sexual Offending Cycle, and Deviant Sexual Preference. Scores on this factor ranged from 0 to 15 ($M = 6.2, SD = 3.7$). The median split was performed on a score of 7 yielding 63 individuals classified as low deviance and 50 individuals as high deviance. Based on their PCL-R scores, offenders were also classified into psychopath (high psychopathy $\geq 25$) and non-psychopath (low psychopathy $< 25$) groups. Overall, 48 individuals were classified as low deviance/low psychopathy, 37 high deviance/low psychopathy, 16 low deviance/high psychopathy, and 12 high deviance/high psychopathy.

3.8.1 Psychopathy, sexual deviance, and sexual recidivism.

The relationship of psychopathy and sexual deviance to sexual recidivism was examined through several analyses. First, chi square analyses were conducted to ascertain whether offenders falling into the high psychopathy/high sexual deviance group recidivated at a proportionately higher rate than offenders in the remaining three groups. Psychopathy and sexual deviance were related to sexual recidivism when the criterion was defined as any new conviction for a sex offense, $\chi^2 (3) = 8.03, p < .05, \phi = .27$. Figure 3.1 graphs the percentage of individuals reconvicted by psychopathy/deviance group according to three recidivism criteria — any new sexual conviction, non-sexual violent conviction, and any non-sexual conviction. The relationship of psychopathy/sexual deviance to sexual reconviction is presented in the first series of columns on the extreme left hand side of the X-axis. As illustrated by this schematic, 58.3% of psychopaths scoring high on the Sexual Deviance factor were subsequently reconvicted for a new sex offense, in comparison to substantially fewer non-deviant non-psychopaths (20.8%), deviant non-psychopaths (35.1%), and non-
Figure 3.1

The Relationship of PCL-R and Sexual Deviance to Sexual and Non-Sexual Recidivism

Outcome Measures

[Diagram showing recidivism percentages for different categories]
deviant psychopaths (18.8%). However, when the criterion was redefined as any charge or conviction for a new sex offense (hence increasing base rates of sexual recidivism), psychopathy and sexual deviance were no longer significantly related to sexual recidivism, \( \chi^2 (3) = 3.61, \text{NS}, \phi = .18. \)

This relationship was examined further through a 2 (high/low psychopathy) X 2 (high/low sexual deviance) ANOVA, using total new sexual offenses (charges and convictions) as a continuous dependent variable. If deviant psychopaths committed more new sex offenses than offenders in the remaining three groups, then there should be a significant interaction effect between the two variables. There was a significant main effect for Sexual Deviance (\( F (1, 109) = 5.21, p < .05 \)), indicating that high deviance offenders tended to commit more sex offenses on release than offenders scoring low on sexual deviance. However, the main effect for Psychopathy was not significant (\( F (1, 109) = 1.66, \text{NS} \)), nor was the Psychopathy-Sexual Deviance interaction (\( F (1, 109) = .56, \text{NS} \)). When the dependent variable was limited to total sexual convictions only (excluding charges), the same findings emerged, with a significant main effect for Sexual Deviance (\( F (1, 109) = 7.46, p < .05 \)), and nonsignificant effects for Psychopathy (\( F (1, 109) = .84, \text{NS} \)), and the Psychopathy-Sexual Deviance interaction (\( F (1, 109) = .90, \text{NS} \)).

Finally, the link between psychopathy, sexual deviance, and sexual recidivism was explored through survival analysis using the Life Tables Survival Analysis option on SPSS. Figure 3.2 graphs the cumulative survival of these four groups over the study follow-up period. The criterion variable for this analysis was any new conviction for a sexual offense over the follow-up period. The overall model was not significant (Wilcoxin-Gehan Statistic (3) = 5.78, \( p = .123 \)). However, pairwise comparisons demonstrated that high deviant
Figure 3.2

Survival Curves (Cumulative Proportion Surviving) for Low Psychopathy/Low Sexual Deviance, Low Psychopathy/High Sexual Deviance, High Psychopathy/Low Sexual Deviance, and High Psychopathy/High Sexual Deviance with Respect to Any New Sexual Conviction.

Survival Function

Years to First Sexual Reconviction
psychopaths tended to sexually re-offend faster and at higher rates. The survival curve of the deviant psychopathic group was significantly different from the non-deviant non-psychopath group (Wilcoxin-Gehan (1) = 4.65, \( p < .05 \)), and approached significance relative to the non-deviant psychopath group (Wilcoxin-Gehan (1) = 3.69, \( p = .055 \)). No difference was observed in the survival curves between deviant psychopaths and deviant non-psychopaths (Wilcoxin-Gehan (1) = 1.89, NS).

### 3.8.2 Psychopathy, sexual deviance, and non-sexual recidivism.

The link between psychopathy, sexual deviance, and non-sexual recidivism was examined using the same four extreme groups outlined above. Chi square analyses were conducted to examine whether sexually deviant psychopaths re-offended at higher rates than non-deviant psychopaths, or non-psychopaths irrespective of deviance. Overall, sexual deviance appeared to contribute little to non-sexual recidivism, and three analyses seem most germane. First, non-deviant psychopaths evidenced the highest rates of violent reconviction (68.8%) followed by deviant psychopaths (50%) (see Figure 3.1). The frequency of violent reconviction was considerably higher for these two groups than the deviant non-psychopaths (21.6%) and the non-deviant non-psychopaths (39.6%) (\( \chi^2 (3) = 11.27, \ p < .05, \phi = .32 \)). Moreover, non-deviant psychopaths evidenced the highest rate of non-sexual reconviction (81.3%) followed closely by deviant psychopaths (75%). Again the psychopathic groups evidenced considerably higher rates of non-sexual reconviction than deviant non-psychopaths (37.8%) and non-deviant non-psychopaths (60.4%) (\( \chi^2 (3) = 11.22, \ p < .05, \phi = .32 \)).
The relationships among psychopathy sexual deviance and non-sexual recidivism was examined further through a 2 (high versus low deviance) X 2 (high versus low psychopathy) factorial ANOVA using continuous measures of non-sexual recidivism (total non-sexual violent convictions and total non-sexual convictions) as the DVs. For total non-sexual violent convictions, there was a significant main effect for Psychopathy ($F(1, 109) = 4.68, p < .05$), although the main effect for Sexual Deviance ($F(1, 109) = .08, NS$) and Psychopathy-Deviance interaction were not significant ($F(1, 109) = 2.05, NS$). For total non-sexual convictions, there was also a significant main effect for Psychopathy ($F(1, 109) = 6.81, p = .01$), although the main effect for Sexual Deviance ($F(1, 109) = 1.35, NS$) and the interaction were not significant ($F(1, 109) = 2.96, p = .088$). In sum, psychopaths tended to commit more violent offenses, non-sexual offenses, and total offenses upon release. Sexual deviance, on the other hand, appeared to contribute marginally to the density of non-sexual recidivism (i.e., total new offenses committed).

Finally, the psychopathy, sexual deviance, and non-sexual recidivism link was examined through survival analyses using any new reconviction as the criterion variable. No other recidivism measures (e.g., non-sexual violent reconviction) were used in survival analysis because the necessary data were not available (e.g., date of first non-sex violent reconviction). The Life Tables Survival Analysis option on SPSS was used to track the cumulative survival of the offenders across the four groups. Figure 3.3 illustrates the cumulative survival of these four groups over the total study follow-up period.

An overall comparison demonstrated the four survival curves to be significantly different from one another (Wilcoxin-Gehan (3) = 8.81, $p < .05$). Visual inspection of the graph depicts comparable survival curves between the two psychopathic subgroups and
between the two non-psychopathic subgroups. Overall, psychopaths appeared to fail faster and at a higher rate than non-psychopaths, irrespective of deviance. Pairwise comparisons revealed that the survival curve of the deviant psychopaths was significantly different from the survival curve of the deviant non-psychopaths (Wilcoxin-Gehan (1) = 6.51, \( p < .05 \)). The survival curve of non-deviant psychopaths was also significantly different from that of the deviant non-psychopaths (Wilcoxin-Gehan (1) = 5.46, \( p < .05 \)). The difference in the survival curves between the deviant psychopath and non-deviant non-psychopath groups, approached but did not attain significance (Wilcoxin-Gehan (1) = 2.60, \( p = .107 \)). None of the remaining survival curve comparisons among the four groups were significant.
Figure 3.3

Survival Curves (Cumulative Proportion Surviving) for Low Psychopathy/Low Sexual Deviance, Low Psychopathy/High Sexual Deviance, High Psychopathy/Low Sexual Deviance, and High Psychopathy/High Sexual Deviance with Respect to Any Reconviction.

Survival Function

Cumulative Proportion Surviving

Years to First Reconviction
3.8.3 Factor 1, Sexual Deviance, and Sexual Recidivism

Given that Factor 1 appeared to account for much of the PCL-R's relationship to sexual recidivism, the relationship of Factor 1 and sexual deviance to sexual recidivism was explored through survival analysis. A demonstrably steeper survival curve for high Factor 1/high sexual deviance would provide evidence for an interaction between these two constructs and may represent the "deadly combination" as proposed by Hare (1997). A median split was performed on Factor 1 to subdivide the offenders into high (score 7-16, n = 42) and low (score ≥ 6, n = 71) Factor 1 groups. Survival analyses were rerun using both binary sexual recidivism outcome measures as the dependent variables (see Figure 3.4).

The overall model did not attain significance with respect to *any sexual charge/conviction*, Wilcoxin-Gehan (3) = 5.90, *p* = .117. Although some significant differences were noted between the survival curves for some groups, these differences are interpreted with caution given the absence of a significant main effect (see top chart Figure 3.4). The high Factor 1/high deviance group evidenced significantly faster and higher rates of sexual recidivism than the low Factor 1/low deviance group (Wilcoxin-Gehan (1) = 5.02, *p* < .05). There were no significant differences among any other survival curves, although the high Factor 1/low deviance group approached significance relative to the low Factor 1/low deviance group (Wilcoxin-Gehan (1) = 2.78, *p* = .096). Results of survival analysis were stronger when the more stringent *any sexual reconviction* outcome measure was used (Wilcoxin-Gehan (3) = 6.77, *p* = .08; see bottom chart Figure 3.4). The high Factor 1/high deviance group evidenced the fastest and highest rate of sexual reconviction of the four groups, although the only significant difference between survival curves emerged between this cohort and the low Factor 1/low deviance group (Wilcoxin-Gehan (1) = 6.88, *p* < .01).
Figure 3.4

Survival Curves as a Function of Factor 1 Score and Sexual Deviance with Respect to Any Sexual Charge/Conviction (Top Chart) and Any Sexual Conviction (Bottom Chart).
4. Discussion

The present study proposed to investigate the relationship between psychopathy and sexual recidivism, and to further elucidate the potential interaction between psychopathy and sexual deviance on risk for recidivism. Ancillary purposes of this study included examining the convergence of the PCL-R with the VRS:SO and evaluating the PCL-R's relationship to various non-sexual recidivism criteria.

4.1 Base Rate of Psychopathy in Sex Offender Populations

In the current study, approximately 25% of the sample met the PCL-R criteria (25-point cutoff) for psychopathy, with the highest base rates observed in rapists and mixed offenders (approximately 35%). These base rates are consistent with estimates from other offender populations. For instance, Brown and Forth (1997) and Porter et al. (2000) also reported psychopathy base rates of 35% and 36% respectively in their rapist samples. Also consistent with Serin et al. (1994) and Porter et al., (2000), psychopathy had a very low base rate among child molesters and incest offenders. What might account for the differences in the base rate of psychopathy among different sex offender subtypes?

As psychopaths tend to be impulsive, criminally versatile and opportunistic offenders, it seems plausible that they would be represented in much lower numbers among those offenders who tend to be more specialized in their offending and to use more premeditation and planning, such as the case with incest offenders and child molesters. For instance, with both groups there is often a prolonged period of grooming the victim prior to any sexual contact taking place, and the sexual contact is often introduced slowly, gradually increasing in its level of intrusiveness over time (although not always). The profiles of the modal incest
offender and child molester (although still there is much heterogeneity within these groups) also do not seem to fit the bill of the psychopath. For instance, the modal incest offender tends to be a middle aged married man with little formal criminal history, and the modal child molester is usually a socially inadequate individual, who is sexually and emotionally attracted to children and whose criminal proclivities are limited to sexually assaulting children. Rapists and mixed offenders are more likely to be generic criminals with a varied criminal history of violent and non-violent offenses. They may or may not have a predilection towards deviant sexual stimuli, and may or may not limit themselves to sexual offending in their criminal pursuits. These offenders seem to exhibit greater levels of lifestyle impulsivity (e.g., Prentky & Knight, 1986), and are less likely to resort to extensive planning and grooming of their victims prior to committing their sexual offenses. As such, it seems plausible that psychopathic sex offenders would be most highly represented among the rapists and mixed offenders.

4.2 The Relationship of the PCL-R to Sexual Recidivism

The PCL-R demonstrated a comparable degree of predictive accuracy for various sexual recidivism criteria as evidenced in previous studies (approximate $r = .18$), suggesting a small relationship between psychopathy and sexual recidivism. PCL-R total and Factor 1 correlations approached or attained significance with respect to the probability of ever sexually re-offending and the density of re-offending.

An interesting finding throughout the study was that Factor 1 (i.e., psychopathic personality style) bore consistently stronger relationships to sexual recidivism than Factor 2. Most of Factor 1’s predictive validity correlations approached or achieved significance with
various sexual recidivism criteria. Factor 2, on the other hand, failed to demonstrate any relationship to sexual recidivism. One possible explanation for the relatively strong findings with Factor 1 may be its conceptual overlap with the Treatment Compliance factor. That is, inherent within Factor 1 are some of the dysfunctional cognitive processes used by sex offenders to rationalize their offending behavior. As attitudes and cognitions have been shown to predict sexual re-offending (Hanson & Harris, 1998/2000, Smith & Monastersky, 1986), a possibility may be that it is these thought processes shared by the two factors that account for Factor 1's relationship to sexual recidivism.

A second part of the answer may be in the content of Factor 1 that distinguishes it from the dynamic component of the VRS:SO. Upon further scrutiny of Factor 1 there appear to be nuances of the interpersonal and emotional style of the psychopath that are not captured within the VRS:SO itself or its composite factors. For instance, when Factor 1 was disaggregated into its individual items and these items were correlated with sexual recidivism criteria, two items – superficiality and lack of remorse – bore particularly strong relationships to sexual recidivism. The contemptuous lack of regard for other people and the charming and superficial means of relating to others points to another construct not tapped by the VRS:SO, which seems to have some important implications for sexual recidivism.

The lack of relationship observed with Factor 2, however, may reflect the fact that many high risk sex offenders who recidivated following their release simply had low Factor 2 scores, lacking the reckless, impulsive, and chronically unstable antisocial lifestyle that typifies this factor. Rather, the data reveal that there was no linear relationship between Factor 2 and sexual recidivism. The majority of the PCL-R's relationship to sexual recidivism can be explained by Factor 1, which evidenced statistical associations to sexual
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recidivism comparable in magnitude to that of the total scale, across correlation and multiple regression analyses (even after controlling for Factor 2).

4.3 Psychopathy, Sexual Deviance, and Recidivism: Evidence for an Interaction?

Although the PCL-R generally demonstrated good convergence with the VRS:SO in theoretically meaningful ways (e.g., high correlations between Treatment Compliance and Factor 1, Criminality and Factor 2), little to no linear relationship was found between PCL-R scores and sexual deviance. One study (Serin et al., 1994) has found the PCL-R to be significantly correlated with deviance indices from phallometric testing stimuli. In other words, individuals who exhibited higher levels of deviant arousal also happened to be more psychopathic. However, the two constructs appeared to be orthogonal in this study. One possible explanation for this finding may be that there were several deviant offenders in the sample who possessed few psychopathic characteristics. For instance, the child molesters had the highest mean Sexual Deviance scores (10.1) out of the four offender subtypes in this sample. However, none of them met the PCL-R criteria for psychopathy and in fact, they had the lowest mean PCL-R scores out of the four offender subtypes (15.8). It seems at least with this sex offender sample, there is no linear relationship between psychopathy and sexual deviance, although this does not negate the possibility for an interaction between these two constructs in risk for recidivism.

Three recent studies have generated increasing interest in a potential interaction between psychopathy and sexual deviance in impacting an offender's risk for recidivism (Gretton et al., 2001; Rice & Harris, 1997; Serin et al., 2000). In his writings, Hare (1997) suggested that a proclivity for deviant sex (e.g., gratuitous violence, sadism) combined with
psychopathy might potentiate an individual’s risk for sexually re-offending and perpetrating grievous emotional, physical, and psychological harm to the victim. The existing body of research has been extended to suggest that psychopathy and deviance might also have implications for non-sexual violent and general recidivism (Gretton et al., 2001; Serin et al., 2000). Is it possible that high Factor 1 scores and sexual deviance compose the “deadly combination” alluded to by Hare? One of the primary purposes of the current study was to investigate this putative interaction between these two constructs, through several statistical analyses.

The most convincing evidence for a potential psychopathy-deviance interaction emerged from the results of chi square and survival analyses. High deviant-psychopaths tended to evidence a higher frequency of sexual reconviction and tended to be sexually reconvicted at a higher and faster rate than other subgroups. The results were less clear when the definition of sexual recidivism was expanded to include charges (which would have the effect of increasing the base rate). The psychopathy-sexual deviance interaction was also examined in relation to various forms of non-sexual recidivism. Across the analyses, sexual deviance appeared to contribute little to prediction of non-sexual recidivism, nor was there much evidence for an interaction. Rather, deviant and non-deviant psychopaths appeared to recidivate non-sexually (be it violent or general) at roughly equal frequency and amassed a comparable amount of non-sexual convictions. Results of survival analyses for any reconviction also revealed similar failure rates across both psychopathic groups, irrespective of deviance. In sum, the deviance-psychopathy interaction seemed be considerably more germane for sexual, than for non-sexual recidivism.
Possible evidence for the “deadly-combination” hypothesis emerged when a potential interaction between Factor 1 and sexual deviance was examined through survival analysis. Individuals scoring high on both Factor 1 and sexual deviance evidenced a steeper survival curve (and hence higher failure rate) for sexual recidivism than the low deviance-low psychopathy subgroup, although this finding should be interpreted with caution given the absence of a main effect. As an additional cautionary note, the construct validity of the Sexual Deviance factor on the VRS:SO has not yet been established, and further evidence for this from another sex offender sample would strengthen any conclusions based on research with this factor.

This may point to a potential synergistic relationship between the two constructs, which may merit future research attention and have implications for sex offender risk assessment and treatment. In terms of future research activity, it would be interesting to further examine the evidence for an interaction between Factor 1 and sexual deviance using the data from the three previous studies. The potential utility of the PCL-R in sex offender risk assessment may be found in elevated Factor 1 scores found in conjunction with other potent risk markers (e.g., sexual deviance, pro-offense attitudes). It is important to note, however, that the PCL-R (including factor 1) still contributed very little unique variance in the prediction of sexual recidivism beyond the Static 99 or VRS:SO. Issues concerning the use of the PCL-R in sex offender risk assessment are addressed in the next section below.

4.4 Considerations for Use of the PCL-R in Sex Offender Risk Assessment

An ancillary purpose of the current study was basically to examine the utility of the PCL-R in sex offender risk assessment over and above that of existing risk instruments
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developed specifically for this purpose. As such, the PCL-R’s unique relationship to sexual recidivism was examined after statistically controlling for the VRS:SO and Static 99 through a series of multiple regression analyses. Three primary themes emerged: 1) The PCL-R failed to predict any sexual recidivism criteria after controlling for actuarial (static) measures of risk. 2) A similar finding was obtained when controlling for the dynamic factors or VRS:SO total (i.e., combined static-dynamic) scores. In both cases, the static and dynamic components of the VRS:SO generally maintained significant relationships to sexual recidivism after controlling for the PCL-R, although the case was considerably stronger for the static factors. 3) The Criminality factor failed to predict sexual recidivism after controlling for PCL-R score; however, the Sexual Deviance factor and the PCL-R appeared to make independent and additive contributions in the prediction of sexual recidivism. Interestingly, Factor 1 also maintained relationships to sexual recidivism similar in magnitude to the aggregate PCL-R after controlling for selected risk measures.

In sum, the PCL-R seemed to contribute little beyond the VRS:SO in the prediction of sexual recidivism. In none of the regression analyses did the PCL-R contribute significant incremental variance in sexual recidivism after independently controlling for the static factors, dynamic factors, or VRS:SO total score. These findings were generally consistent across multiple operational definitions of sexual recidivism.

Notwithstanding the potential of Factor 1, the PCL-R appears to hold much more potential in the prediction of non-sexual recidivism. Consistent with a substantial volume of literature (e.g., Gendreau et al., 2002) the PCL-R demonstrated to be a strong predictor of several non-sexual recidivism criteria, including non-sexual violence and general re-offending, even after controlling for age at release and criminal history. The utility of the
PCL-R in the appraisal of risk for violent and general recidivism is strong; however, its value in appraising risk for sexual recidivism is equivocal. As such, a psychopathy assessment would likely contribute more in an assessment of risk for violent or general recidivism.

Why is the relationship weaker for sexual offending? It seems that a natural prerequisite for extensive criminal activity would be to possess a fairly large number of psychopathic characteristics such as an impulsive, reckless, irresponsible lifestyle, a tendency for the guiltless and selfish use of others and holding little compassion or concern for the rights and interests for anybody other than oneself. However, sex offenders constitute a very diverse group of offenders (Prentky & Knight, 1991, Worling, 2001), many of whom can present as very high risk while possessing few psychopathic characteristics. For instance, child molesters, while also being a diverse group of offenders (Knight & Prentky, 1990), are often socially inadequate, have few rewarding adult relationships, poor esteem, and little criminal history aside from their sexual offending. Often these individuals will have the capacity to experience a normal depth and range of affect, may hold a regular job, and otherwise be law-abiding citizens with the exception of their sexual deviance. Yet while lacking the criminal versatility, irresponsible lifestyle, impulsivity, marital relationships, volatile temper, charm and grandiosity of the psychopath, not uncommonly will they have a deeply entrenched sexual attraction for children, a lengthy history of undetected sexual offending, compulsive sexuality, and multitudes of victims. In other words, many sexual offenders present as high risk for sexual recidivism while possessing few psychopathic characteristics.

The analyses indicate that co-occurring psychopathy and sexual deviance may elevate an individual's risk for sexual recidivism, although the individual relationship of psychopathy
to sexual recidivism appears somewhat small and tenuous. As the VRS:SO captures much of the information provided by the PCL-R in the prediction of sexual recidivism, there may be little value found by including the PCL-R in a sex offender risk assessment unless the purpose of the assessment also includes an appraisal of risk for violent or general recidivism.

4.5 Shortcomings of the Present Investigation

One potential shortcoming of the present investigation reflects the use of archival data (no interview), although a 25-point cutoff was used to more accurately capture the *true* base rate of psychopathy in the sample. Interviews were simply not possible since most of the offenders had been released for several years. In addition, psychometric properties of the PCL-R, as rated from the current sample, suggest that the ratings were likely accurate and produced a sound dataset. This includes high internal consistency ($\alpha = .83$), strong interrater reliability ($ICC = .84$), and an oblique two-factor model obtained through factor analysis directly paralleling the model reported by other researchers (e.g., Hare, 1991).

A second shortcoming reflects the fact that the PCL-R was rated on only a stratified subsample of offenders, rather than the entire pool of sex offenders. This has the disadvantage of reducing power for inferential statistical analyses in addition to making it difficult to perform comparisons between different sex offender groups (e.g., comparing rapists to child molesters).

A third potential shortcoming reflects the fact that phallometric data were not used to provide a parallel measure of sexual deviance. Rather, a factor-analytically-derived composite scale from the VRS:SO was used. Although this measure was rated on the basis of information gleaned from phallometric testing reports, whenever possible, it would have
been ideal to have another convergent measure of sexual deviance. As previous studies investigating the link between psychopathy, sexual deviance and recidivism have used raw phallometric data, the use of such data would have provided a more direct replication of past findings. Nevertheless, the fact that the hypothesized relationships emerged using the composite Sexual Deviance scale provides some indirect support for its construct validity.
STUDY 4: CORRELATES OF ATTRITION FROM A SEX OFFENDER TREATMENT PROGRAM: THE ROLE OF PSYCHOPATHY AND IMPLICATIONS FOR RISK AND RECIDIVISM

1. Literature Review

Attrition, or the withdrawal, dropout, or removal of participants from a therapeutic regime, is a phenomenon that is endemic to treatment in general, and correctional intervention in particular. The problem of attrition presents a conundrum to both researchers and treatment service providers alike. From the standpoint of the researcher, certain methodological quandaries arise such as whether to classify a treatment dropout as a treated case, a control, or to place the individual in a separate category (Marques, 1999). A related question might be when to classify an individual as a dropout -- for instance, should researchers consider an individual who attended half the total number of sessions to be a treated case? As of yet, there has been no consistency or uniformity in the way treatment researchers have negotiated the methodological hurdles associated with client attrition. From the standpoint of the correctional treatment services provider, it is often the highest risk, highest need cases who are the most vulnerable to attrition and who pose the greatest risk for criminal recidivism (Wormith & Olver, 2002). Ironically, it is those very cases who need intensive treatment the most who often wind up not receiving it.

Correctional treatment attrition is a heterogeneous phenomenon and Wormith and Olver (2002) distinguish among three broad classes of attrition or non-completion: staff-initiated, client-initiated, and system-initiated. Staff-initiated discharge is perhaps the most common scenario in which the offender is involuntarily discharged by treatment staff for a variety of possible reasons including a lack of motivation or poor effort, disruptive or abusive
behavior, institutional infractions, failure to evidence treatment progress, poor compatibility with the treatment regime and so forth. Another frequent occurrence is client-initiated discharge, in which the client requests to leave the program often upon finding therapy to be a difficult, and at times aversive endeavor. In such cases the client may not feel ready to progress in therapy, begin to make changes, or to explore the salient issues that may have brought him or her to therapy. In other circumstances, the client may have an incompatible or may find the program work tedious and difficult. A final case is the issue of system-initiated discharge in which the client is released or transferred by an administrative agent for reasons unrelated to his or performance in the treatment program. Examples include being granted day parole or statutory release prior to completing the program.

1.1 Treatment Attrition in Offender Populations

The extant literature indicates that treatment attrition is particularly widespread in forensic populations. For instance, in a sample of 61 domestic batterers attending an outpatient treatment program, DeHart, Kennerly, Burke, and Follingstad (1999) lost roughly 50% of their sample to attrition, with higher dropout rates observed in men whose attendance was not regularly monitored. Similarly, in an urban based-treatment facility for spousal abusers, DeMaris (1989) found over one quarter (28%) of his sample failed to complete treatment, despite being ordered by the courts (civil or criminal) to successfully do so. In comparison to successful treatment completers, clients who failed to complete treatment were more likely to be unemployed and to have lower mean annual incomes. They were also more likely to have initiated premarital abuse, have a record of prior arrests, to consume alcohol, to view the cessation of violence as less important, to have younger partners, and to be of
younger age. In an outpatient batterer treatment program, Gondolf and Foster (1991) reported attrition rates of 73% between initial inquiry into the program and the intake assessment phase, and a rate of 86% by the time clients entered into counseling. After 12 sessions had passed, 93% of the initial treatment referrals had dropped out, and at the end of the full 8-month program, only 1% of the men had successfully completed.

Rooney and Hanson (2001) conducted an extensive multi-site program attrition study on a sample of 306 male batterers. Four sites were included in the study, each employing a different therapeutic modality for the treatment of spousal assault conducted in group format including unstructured group therapy, a semi-structured psychoeducational program based on the Deluth model, humanistic-existential, and cognitive-behavioral. Interestingly, the in-program attrition rates were reasonably consistent across the four sites, ranging from 36% to 42%. The psychoeducational group, however, had a disproportionately high number of individuals who failed to show up for the first treatment session ("no shows") (46%). Using survival analysis and Cox regression to identify the most salient predictors of program attrition over the treatment sessions, Rooney and Hanson found the strongest predictors to be total Level of Services Inventory-Revised (LSI-R) score, young age, unemployment, criminal history (number of previous convictions), substance abuse problems, having moved residences frequently, poor verbal skills, and to have perpetrated more severe abuse. Finally, Dalton, Major, and Sharkey, (1998) found that 56.2% of all treatment referrals made to a general forensic outpatient service never attended treatment or dropped out. Anger management referrals tended to be the most problematic, however, with 80% of the treatment recipients failing to complete. Hird, Williams, and Markham (1997) reported a similar figure of 82% non-completion for their anger management clientele.
The problem of treatment attrition has also received increased attention in the therapeutic services delivered to sex offenders. In this area of the field, attrition seems to have been viewed as more of a methodological nuisance confounding the interpretation of treatment outcome findings. Only recently have researchers devoted their efforts to more systematically examine the problem of attrition in sex offenders and other correctional clientele. For instance, Abel, Mittelman, Becker, Rathner, and Rouleau (1988) found that 35% of their clients in an outpatient treatment facility for child molesters did not complete treatment. Marques and colleagues (1999; Marques, Day, Nelson, & West, 1994) grappled with the problem of attrition in an elegantly designed long-term treatment outcome study, the Sex Offender Treatment Evaluation Project (SOTEP). A preliminary inquiry into the program's success (Marques et al., 1994) revealed that 19% of treated offenders had dropped out prior to program completion. Now nearing the end of this project, Marques (1999) has recently reported a 25% non-completion rate for all treatment participants.

Hunter and Figueredo (1998) investigated treatment noncompliance in a sample of 121 juvenile sex offenders admitted to an intensive (i.e., 24-month) sex offender program. Fifty percent of the youths accepted into the program dropped out in their first year of treatment, with an additional 37% dropping out the following year, and a mere 23% remaining until program end. Youths who failed to stay the duration of the program also tended to evidence higher levels of denial at intake, greater sexual maladjustment, and failure to comply with therapeutic directives and attendance requirements. Craissati and Beech (2001) examined the problem of treatment non-compliance in sample of 78 sex offenders treated in a outpatient clinic in Southeast London. Forty seven percent of their sample were rated as non-compliant for reasons that included poor attendance (missing more than two
sessions), dropping out of treatment, or extenuating circumstances. Non-compliers had more extensive contact with mental health services as an adult, more childhood disturbances, were more likely to have suffered previous childhood sexual abuse, and were more likely to be classified as high risk on an actuarial sex offender risk assessment tool (the Structured Anchored Clinical Judgment; SACJ). Given the low sexual recidivism base rates in the sample (2.6%), it was not possible for the researchers to examine the relationship of non-compliance to sexual re-offending.

Finally, Browne, Foreman, and Middleton (1998) investigated client attrition in a sample of 96 child molesters in a community treatment program. While 37.5% of the sample failed to complete treatment, several variables discriminated dropouts from successful program completers, including having a violent index offense, prior violent convictions, non-contact sex offenses, prior incarceration, unemployment, drug/alcohol dependence, and delinquent behavior and deterioration in treatment. A discriminant function analysis of these characteristics also resulted in a 78% correct classification rate of treatment dropouts and completers.

1.2 Correctional Program Attrition and Risk for Recidivism

Perhaps more problematic, treatment attrition has also been shown to predict recidivism in various offender groups. For instance, Wormith and Olver (2002) found client dropout to predict general recidivism (any new charge or reconviction) in a sample of violent offenders \((r = -.23)\), who received treatment services at the RPC's Aggressive Behavioral Control (ABC) program. In their seminal meta-analysis, Hanson and Bussière (1996/1998) also found treatment noncompliance to be a significant and robust predictor (mean weighted
\( r = .18 \) of sexual offense recidivism. Moreover, Hanson and Harris (1998/2000) observed that recidivistic rapists and child molesters were more likely to have evidenced poor motivation, little effort, and to have dropped out of past treatment programs, than non-recidivists. Finally, two recent sex offender treatment outcome studies have also found a relationship between treatment non-completion and sexual recidivism. In a Dutch sex offender outpatient study, Ruddijs and Timmerman (2000) lost 34% of their treatment sample to attrition. Low sexual recidivism base rates were observed in both successful treatment completers (5%) and untreated offenders (2%), although a substantially greater proportion of the dropouts (21%) committed new sex offenses. In a large-scale cognitive-behavioral sex offender treatment outcome study, Aytes, Olsen, Zakrajsek, Murray, and Ireson (2001) reported a 40% unsuccessful completion rate (157 offenders) in their sample. Less than 1% (1 out of 170) of offenders who met the program criteria for successful completion received a subsequent felony conviction for a sexual offense and only 6.5% were convicted of any new offense. In contrast, 10.8% of unsuccessful completers were convicted of a new sexual offense, and 32.5% received a new conviction for any offense.

The mechanism underlying the relationship between treatment attrition and recidivism is unclear – it is possible that higher risk offenders are more likely to drop out or to be discharged from treatment. This is certainly what Wormith and Olver (2002) found, in which case, non-completers had substantially higher Statistical Information on Recidivism (SIR) scores than successful completers. On the other hand, another possibility may be that treatment recipients who drop out have not benefited fully from the intervention. Not only have they had an abbreviated exposure to the program content, but given the reasons
commonly cited behind their discharge (e.g., poor motivation, disruptive behavior), it is questionable as to how much of the material they have actually internalized or retained.

1.3 Psychopathy, Treatment, and Recidivism

The available research has generally shown that psychopaths respond poorly to treatment, tending to evidence poor motivation, little improvement, and high rates of attrition (Ogloff, Wong, & Greenwood, 1990). Some modalities such as the therapeutic community have also demonstrated to be iatrogenic (especially when poorly implemented), serving to elevate the violence risk potential of psychopaths who partake in such treatment (Rice, Harris, & Cormier, 1992). Recent research has indicated that psychopathy and treatment behavior may also predict violent and/or sexual recidivism. For instance, Seto and Barbaree (1999) examined the relationship between good treatment behavior, parole success, and sex offense recidivism in a sample of 283 sex offenders who had completed treatment. In sum, 27.7% failed by having their parole revoked for a condition relevant to their sex offending history or for committing a new sex offense. PCL-R score was a significant predictor of sexually oriented parole revocations ($\beta = .17$). In addition, 7.6% of the offenders committed a new serious offense (defined as a sexual or nonsexual violent offense) during the follow-up period. Again, the PCL-R was a significant predictor of serious recidivism ($\beta = .15$).

Unexpectedly, a significant interaction was also observed between treatment behavior and psychopathy that was highly predictive of serious recidivism. In particular, offenders who demonstrated better treatment behavior, motivation, and made more treatment gains as rated by treatment staff, were more likely to commit a new serious offense. Furthermore, psychopaths who displayed good treatment behavior were also five times more likely to
commit a new serious offense than psychopaths with poor treatment behavior, or non-psychopaths exhibiting either good or poor treatment behavior.

In his doctoral thesis, Langton (2003) recently reanalyzed the Seto and Barbaree (1999) data with a larger sample and longer follow-up. With the improved study design and further analysis, Langton obtained the opposite effect – psychopathic sex offenders demonstrating good treatment behavior were no more likely to violently recidivate than non-psychopathic offenders. However, psychopathic sex offenders exhibiting poor treatment compliance evidenced dramatically higher violent failure rates as demonstrated through survival analysis using Cox regression. As such, an interaction was found between treatment performance and psychopathy with respect to violent recidivism. The implications are considerable, as the new data indicate: 1) psychopathic sex offenders are treatable, or at least as treatable as other sex offenders, and 2) psychopathic sex offenders who cooperate poorly with the treatment process are correspondingly at higher risk to violently recidivate. Again, the literature indicates that poor cooperation with the treatment process can have dire implications for post-release adjustment.

The above review indicates that individuals who fail to cooperate with sex offender treatment are often higher risk offenders and tend to evidence higher rates of sexual and non-sexual recidivism. Based on the extant literature, might some of the scale dimensions of the VRS:SO also be used as markers for treatment dropout, and can the VRS:SO's utility be expanded in this way?
1.4 Purpose of the Present Study

*Predicting Treatment Attrition: Relative Contributions of Psychopathy and the VRS:SO*

The capacity of the VRS:SO factors and psychopathy to predict dropout from sex offender treatment programming will be assessed. As outlined above, psychopaths are notoriously poor responders to intervention efforts and are particularly vulnerable to dropping out of treatment. In a similar vein, indexes of risk (e.g., SIR score) have also been shown to predict program attrition (e.g., Wormith & Olver, 2002). To extend further from these findings, several questions will be asked and explored. For instance, are treatment non-completers more psychopathic than completers? Are psychopaths likely to show less clinical improvement over the course of treatment? Can psychopathy predict treatment failure after risk has been controlled for? First, the relationship of psychopathy to program attrition will be directly examined. The strength of this relationship will then be reassessed after controlling for the VRS:SO Criminality factor. Moreover, the capacity of the VRS:SO to predict dropout will be examined, in addition to its individual Criminality and Sexual Deviance factors. Lastly, the capacity of the VRS:SO to predict dropout will be examined after controlling for the PCL-R.
1.5 Hypotheses:

Prediction of Attrition from Sex Offender Treatment: The Contributions of the VRS:SO

Sexual Deviance and Criminality Factors, and Psychopathy

1) Treatment dropouts will score significantly higher on the PCL-R than treatment completers. PCL-R total score, Factor 1 score and Factor 2 score will each correlate significantly with dropout.

2) When examined as a group, the treatment non-completers will contain a significantly greater proportion of psychopaths than the group of treatment completers.

3) PCL-R score will not correlate with the binary treatment attrition variable after controlling for the VRS:SO Criminality factor.

4) Pre-treatment VRS:SO total scores and the Criminality factor will each correlate significantly with the binary treatment attrition variable.

5) VRS:SO pre-treatment total scores will not correlate significantly with the binary attrition variable after controlling for PCL-R score.
Development and Validation of the VRS:SO

2. Method

2.1 Participants

Participants included 321 male federal inmates who had received treatment services (although not necessarily completing treatment) from the Clearwater Sex Offender Treatment Program at the Regional Psychiatric Center (RPC) (Prairies). Three individuals were not included in the study as they had been pardoned and their records were no longer available, thus reducing the final sample to 318 offenders. The majority (96.2%) of participants had at least one index offense (charge or conviction) for a sexual crime they had committed (e.g., sexual assault, sexual interference, buggery, incest, indecent exposure, invitation to sexual touching, indecent assault, etc.). The remaining 3.8% of the participants either had: 1) a previous charge or conviction for a sexual offense, 2) a history of unreported deviant sexual behavior, or 3) had committed a sex offense but received a conviction for a non-sexual violent offense.

The mean age of the sample was 30.5 years ($SD = 9.8$) at the time of their index offenses and 33.0 years ($SD = 9.6$) at the time of admission to the Clearwater program. Approximately 62.6% of the offenders were Caucasian, 33.6% were Aboriginal, and 2.8% were of "other" ethnic decent (i.e., African, Asian, Filipino). Overall, 49.3% of the sample were single or had never been married, 23.7% had current common-law partners or were legally married, 25.5% were legally separated or divorced and less than 1% were widowed. The average education level attained was 9.6 years ($SD = 2.9$). Their average sentence length was 5.8 years ($SD = 3.9$). When broken down by offender group, 168 (52.8%) individuals in the sample were rapists, 54 (17%) child molesters, 45 (14.2%) mixed offenders, and 51 (16.0%) incest offenders.
Upon discharge from the RPC, a final treatment progress summary is written on each patient and a final DSM multiaxial diagnosis is assigned by a consulting psychiatrist. Psychiatric diagnostic information was available for 316 offenders. Thirty-five (10.9%) individuals met the DSM criteria for a major Axis I mental disorder (schizophrenia, major depression, bipolar disorder, or other psychosis), 80 (24.9%) any paraphilia (e.g., pedophilia, exhibitionism), 165 (52.2%) antisocial personality disorder (APD), 159 (50.6%) any substance use disorder, and 243 (76.9%) any personality disorder.

2.2 Materials

The materials consisted of the Violence Risk Scale Sexual Offender Version (VRS:SO) (revised version from Study 2), the Psychopathy Checklist Revised (PCL-R), and a data collection protocol assessing several key variables.

2.2.1 Violence Risk Scale: Sexual Offender Version (VRS:SO)

The VRS:SO is a rating scale designed to assess risk for sexual offense recidivism (see appendices A and B). It is comprised of two types of risk factors – static and dynamic. The static portion is an 8-item actuarial instrument tapping variables such as violent and sex offending history, offender demographics, and victim characteristics. The dynamic portion includes 16 items empirically and theoretically related to sexual offense risk (e.g., cognitive distortions, substance abuse, level of insight). These factors have the capacity to change, for instance, with treatment (e.g., sex offender programming). The instrument is further divided into two parts – pre- and post-treatment. On the pre-treatment component, the offender is rated on the static and dynamic factors prior to receiving any intervention. The post-treatment
Development and Validation of the VRS:SO

component is scored following the completion of treatment (in whole or in part). In this case, the offender is then re-rated on each of the dynamic risk factors to assess the level of change (either mitigating or exacerbating risk) that has taken place. Prochaska, DiClemente, and Norcross' (1992) transtheoretical model of the change process is used as a theoretical mechanism to evaluate pre- and post-treatment levels of change on each of the dynamic risk factors.

2.2.2 Psychopathy Checklist-Revised (PCL-R; Hare, 1991)

See Study 3 description and Appendix D. The PCL-R was rated on 113 individuals randomly selected from the larger pool of 321 offenders. A psychopath is defined as any individual receiving a score of 30 out of 40 or greater on the PCL-R. Any individual receiving a score falling below this cutoff is generally considered a non-psychopath. In past investigations, a cutoff of 25 has occasionally been used when file information alone was used to score the instrument, since the interpersonal and affective characteristics may be underrated without the interview component (Wong, 1988). However, given the potential for a low base rate of psychopathy in this sample, a more lenient cutoff (i.e., 25) will be used in further analyses. Psychopathy diagnosis will be treated as a binary variable for these analyses (1-0, psychopath/non-psychopath).

2.2.3 Data Collection Protocol

A data collection protocol (see Appendix E) was drafted for the collection of several key variables, required for testing some of the hypotheses outlined above. These included
basic demographic information, index offense, criminal history, treatment program, admission and discharge information, psychiatric diagnosis, and recidivism.

2.2.3.1 Treatment completion/non-completion.

Treatment non-completion, or attrition, is defined as any premature withdrawal or termination from the Clearwater program, and consequent failure to successfully complete program requirements. The completion/non-completion status of the offender was usually clearly identified in file documents (e.g., Treatment Discharge Summary). The treatment program varied in length over the RPC's history, but generally the Clearwater program ranged from 6 to 8 months in duration. In some cases, offenders arrived late in the program and managed to "catch up" to successfully complete the program. In other cases, offenders fell behind in the program, were given an opportunity to stay longer to "catch up," and were eventually discharged for a lack of motivation or progress without successfully completing the program.

Although it was not possible to blindly rate the study variables without knowledge of the offender's program completion status (as all pertinent study information was contained within the offenders' files), efforts were made to guard against potential rater biases through coding objectively rated variables requiring minimal judgment from the rater (e.g., criminal history).

2.2.3.2 Criminal history.

Information was gathered on the following criminal history variables: prior sexual charges, sexual convictions, non-sexual violent convictions, non-sexual non-violent
convictions, and prior sentencing dates. The index offense is the most recent offense the offender was convicted of prior to RPC admission. Criminal records from the Canadian Police Information Centre (CPIC) were updated and recorded between August 2001 and April 2002.

2.2.3.3 Recidivism.

Recidivism is broadly defined as the commission of a new offense following release from custody. The release date to be used as a reference for evaluating recidivism is the most recent date on which the offender was released into the community after having received treatment services at the RPC. The following measures of recidivism were collected: 1) total new charges for a sexual offense, 2) total new convictions for a sexual offense, 3) total new convictions for a violent offense, 4) total new non-sexual convictions. Continuous measures of recidivism were also recoded into binary outcome variables.

2.3 Procedure

Each of the 321 offenders in the overall sample were rated on the entire VRS:SO from a previous investigation (Study 2), including both pre- and post-treatment components. In the current study, the stratified subsample of participants were rated on the PCL-R on the basis of information from their institutional files. Information was accessed primarily through the Offender Management System (OMS), a computerized database that maintains an accumulating dossier of information on each inmate across the entire country. No participants were directly involved in the investigation. All PCL-R's were rated by the principle investigator, who had previously received extensive training in the administration
and scoring of the instrument. Twenty-five PCL-R's had been rated on the same individuals by two trained research assistants from a previous study, and these ratings demonstrated satisfactory inter-rater reliability with the PCL-R ratings from the current sample ($ICC = .84$). In addition, the data collection protocol was rated by the principle investigator in its entirety on the entire sex offender sample.
3. Results

3.1 Treatment Attrition Program Information

Treatment attrition information was available for 318 offenders treated through the Clearwater program. Thirty-nine (12.3%) individuals failed to successfully complete the program, in contrast to the vast majority (n = 279 individuals, 87.7%) who managed to complete the program to full duration. The average length of treatment stay was 8.0 months (SD = 2.9), ranging from 1.3 to 24.3 months. Offenders failed to complete the program for various reasons: 14 individuals were discharged due to a lack of motivation or poor effort, 9 for disruptive behavior, 5 were patient requested, 5 individuals were granted conditional release (e.g., statutory release), and 9 individuals were discharged for other reasons (frustrated with therapy and resistant to change, psychopathology interfering with treatment, violent and abusive behavior, failure to show progress after repeated efforts at programming, counter-therapeutic behavior).

For 35 individuals, information was available about the nature of the discharging agent. In 17 cases staff initiated the patient’s expulsion from the program, 6 cases were patient-initiated, 6 cases were mutually initiated (i.e., staff and patient mutually agreed to premature program termination), and 6 cases were system-initiated (e.g., granted parole).

3.2 A Comparison Between Treatment Dropouts and Completers

Treatment program non-completers and completers were compared on several program variable: psychiatric, criminal history, demographic, and risk-related variables. Chi square analyses were used to examine group differences on discrete variables and one-way ANOVAs were used to examined group differences on continuous variables (see table 3.1).
Table 3.1

Comparison Between Program Completers and Non-Completers on Specified Demographic,
Program-Related, Criminal History, and Psychiatric Variables (N = 318).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Completers (N = 279)</th>
<th>Non-Completers (N = 39)</th>
<th>ϕ or rpb</th>
<th>χ² or F</th>
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<tbody>
<tr>
<td>Demographic</td>
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<td></td>
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<tr>
<td>Native Ancestry</td>
<td>- 32.3</td>
<td>- 46.2</td>
<td>-.10</td>
<td>2.97</td>
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<tr>
<td>Never Married</td>
<td>- 29.1</td>
<td>- 47.4</td>
<td>.13</td>
<td>5.16*</td>
</tr>
<tr>
<td>Unemployed</td>
<td>- 30.4</td>
<td>- 58.3</td>
<td>.19**</td>
<td>11.04**</td>
</tr>
<tr>
<td>Education</td>
<td>9.8 (2.9)</td>
<td>8.6 (2.8)</td>
<td>.13*</td>
<td>4.84*</td>
</tr>
<tr>
<td>Age on Admission</td>
<td>33.2 (9.6)</td>
<td>31.7 (9.1)</td>
<td>.05</td>
<td>.79</td>
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<tr>
<td>Program-Related</td>
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<td></td>
</tr>
<tr>
<td>Treatment Length</td>
<td>8.4 (2.8)</td>
<td>5.4 (1.9)</td>
<td>.34**</td>
<td>40.04**</td>
</tr>
<tr>
<td>Sentence Length</td>
<td>6.0 (3.9)</td>
<td>4.7 (2.3)</td>
<td>.11*</td>
<td>3.97*</td>
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<td>Criminal History</td>
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<tr>
<td>Prior Sex Offenses</td>
<td>1.3 (2.0)</td>
<td>1.1 (1.5)</td>
<td>.05</td>
<td>.75</td>
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<tr>
<td>Prior Non-Sex Violent Convictions</td>
<td>5.7 (6.9)</td>
<td>7.7 (8.4)</td>
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<tr>
<td>Prior Non-Sexual Convictions</td>
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<td>9.5 (9.1)</td>
<td>-.10</td>
<td>3.05</td>
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<td>Psychiatric</td>
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<tr>
<td>APD Diagnosis</td>
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<td>- 71.1</td>
<td>-.14*</td>
<td>6.14*</td>
</tr>
<tr>
<td>Psychopathy Diagnosis</td>
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<td>- 55.6</td>
<td>-.31**</td>
<td>10.88**</td>
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<tr>
<td>Substance Use Disorder</td>
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<td></td>
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<td></td>
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<tr>
<td>Mental Illness</td>
<td>- 11.9</td>
<td>- 5.3</td>
<td>.07</td>
<td>1.48</td>
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</table>

Note: *p < .05, **p < .001, ϕ = phi correlation, rpb = point-biserial correlation.
Program non-completers were more likely to have been diagnosed APD than completers (71% and 50% respectively), were more likely to have an unstable or marginal employment history (58% and 30% respectively), and were less likely to have ever been married or equivalent. Non-completers also had fewer years of education, shorter sentences, and, as would be expected, had a shorter average length of stay in treatment. Treatment completers and non-completers did not differ significantly with respect to prior sexual offenses, prior violent and non-violent convictions, age upon admission, or Native ancestry.

3.3 The VRS:SO and Treatment Attrition

The relationship of treatment attrition to risk for sexual offense recidivism was evaluated through comparing completers and non-completers on each of the VRS:SO scale components and the Static 99 through one-way MANOVA, and through correlating risk instrument scores with the binary treatment attrition variable. Treatment completers and non-completers mean scores on each of the risk measures are summarized in Table 3.2 The overall MANOVA was significant, $F(8, 308) = 8.78, p < .001$, suggesting that at least one significant difference emerged between the two groups on the dependent measures. Treatment non-completers received significantly higher scores on all dynamic VRS:SO measures, and evidenced less therapeutic change ($F(1, 315) = 27.13, p < .001$). However, treatment non-completers did not differ significantly from completers on static measures of risk, which is consistent with the largely equivalent criminal histories demonstrated between the two groups. All risk measures were then correlated with the binary treatment attrition variable. This procedure reframes the above findings with a different metric in which the magnitude of the correlation coefficient provides another means of understanding the
## Table 3.2


<table>
<thead>
<tr>
<th>Measure</th>
<th>Completers (n = 279) M (SD)</th>
<th>Non-Completers (n = 39) M (SD)</th>
<th>Total M (SD)</th>
<th>$r_{pb}$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static 99</td>
<td>4.4 (2.1)</td>
<td>4.4 (1.8)</td>
<td>4.4 (2.0)</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>VRS:SO Static</td>
<td>11.8 (4.3)</td>
<td>12.3 (4.5)</td>
<td>11.8 (4.3)</td>
<td>-.04</td>
<td>.46</td>
</tr>
<tr>
<td>Pre-txt Dynamic</td>
<td>23.2 (7.0)</td>
<td>28.0 (7.3)</td>
<td>23.8 (7.2)</td>
<td>-.22**</td>
<td>15.83**</td>
</tr>
<tr>
<td>Post-txt Dynamic</td>
<td>20.5 (6.7)</td>
<td>27.2 (7.7)</td>
<td>21.3 (7.2)</td>
<td>-.31**</td>
<td>32.54**</td>
</tr>
<tr>
<td>Sexual Deviance (pre)</td>
<td>6.2 (3.9)</td>
<td>7.5 (4.9)</td>
<td>6.3 (4.0)</td>
<td>-.11*</td>
<td>3.90*</td>
</tr>
<tr>
<td>Criminality (pre)</td>
<td>10.5 (3.9)</td>
<td>13.1 (3.6)</td>
<td>10.8 (3.9)</td>
<td>-.21**</td>
<td>15.71**</td>
</tr>
<tr>
<td>Treatment Compliance</td>
<td>4.6 (1.7)</td>
<td>5.7 (1.6)</td>
<td>4.8 (1.7)</td>
<td>-.21**</td>
<td>13.81**</td>
</tr>
</tbody>
</table>

Note: *$p < .05$, **$p < .001$, $r_{pb}$ = point-biserial correlation*
strength of the relationship between two variables. Overall, treatment non-completion was only associated with dynamic, but not static, measures of risk.

As an additional analysis, treatment completers and non-completers were compared on their VRS:SO pre-treatment dynamic risk ratings according to risk category. Three percent of individuals falling into the low risk category failed to complete treatment, in comparison to 8.9% of those rated medium-low risk, 18.7% rated medium-high risk, and 18.3% rated high risk. These group differences in the frequency of attrition by risk level were significant ($\chi^2 = 11.82, p < .01, \phi = .19$), suggesting that program dropouts were more likely to be high risk sex offenders.

In sum, program non-completers tended to receive higher dynamic risk ratings than the treatment completers, although the two groups did not differ on static measures of risk. This result also parallels the nonsignificant group differences found on measures of criminal history and age, which tend to be variables included in most actuarial scales. Dynamic ratings of risk may be linked to program attrition because it is these factors that are targeted for treatment – the treatment dropouts' higher scores may represent more serious problem areas (i.e., criminogenic needs) that are more resistant to change.

3.4 Psychopathy and Treatment Attrition

The PCL-R was rated on a stratified sample of sex offenders ($N = 113$) from a previous study (see Study 3). Of these 113 offenders, 18 (16%) failed to successfully complete treatment. The relationship of psychopathy to treatment attrition was examined through comparing completers and non-completers on PCL-R score with one-way ANOVA and correlating the PCL-R with the binary treatment attrition variable. Table 3.3 summarizes
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treatment completers and non-completers mean scores on each of the PCL-R scale components. Consistent with previous research, non-completers had higher mean scores than completers on all the PCL-R components including Factor 1, Factor 2, and total scores. High univariate correlations were observed between the PCL-R scale components and treatment non-completion. Individuals were also divided into extreme groups (psychopath and non-psychopath) using the 25-point cutoff recommended by Wong (1988) for file-rated PCLs. Using these criteria, 28 individuals (25%) qualified for a psychopathy diagnosis. Consistent with the above findings, a greater proportion of non-completers met the PCL-R criteria for psychopathy (56%) than completers (19%), $\chi^2 = 10.88, p < .01, \phi = -.31$. However, PCL-R total, Factor 1, and Factor 2 scores were not significantly related to length of time spent in treatment. After removing an outlier from the psychopath sample, the correlation of Factor 1 to length of time spent in treatment improved ($r = -.14, NS$), but still did not reach statistical significance. PCL-R and Factor 2 scores were not related to length of program stay irrespective of the outlier. An extreme groups comparison indicated, however, that psychopaths tended to spend less time in treatment than non-psychopaths (6.8 and 8.1 months respectively, $F(1,111) = 3.59, p = .061$). Finally, psychopaths and non-psychopaths did not significantly differ in their VRS:SO therapeutic change scores evidenced over the course of their treatment stay ($M = 2.5, SD = 2.7$ and $M = 2.8, SD = 2.2$ respectively, $F(1,111) = .57, NS$).
Table 3.3

Psychopathy and Treatment Attrition: A Comparison Between Treatment Completers and Non-Completers on PCL-R Scores.

<table>
<thead>
<tr>
<th></th>
<th>Completer</th>
<th>Non-Completer</th>
<th>Total</th>
<th>$r_{pb}$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 95)</td>
<td>(n = 18)</td>
<td>(n = 113)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$ (SD)</td>
<td>$M$ (SD)</td>
<td>$M$ (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 1</td>
<td>5.6 (3.2)</td>
<td>7.8 (3.4)</td>
<td>6.0 (3.3)</td>
<td>-0.24</td>
<td>6.85*</td>
</tr>
<tr>
<td>Factor 2</td>
<td>9.5 (4.2)</td>
<td>12.3 (4.1)</td>
<td>10.0 (4.3)</td>
<td>-0.24</td>
<td>6.51*</td>
</tr>
<tr>
<td>PCL-R Total</td>
<td>18.7 (6.9)</td>
<td>23.7 (7.1)</td>
<td>19.5 (7.2)</td>
<td>-0.26</td>
<td>7.93*</td>
</tr>
</tbody>
</table>

Note: *$p < .05$, $r_{pb} =$ point-biserial correlation
3.5 A Comparative Evaluation of the VRS:SO and PCL-R in the Prediction of Attrition

In independent analyses, the PCL-R and the dynamic component of the VRS:SO evidenced strong relationships to program non-completion. In general, non-completers had higher PCL-R scores and the majority of individuals meeting the criteria for psychopathy (56%) failed to complete treatment. In addition, non-completers tended to receive higher dynamic total ratings and to score higher on the three aggregate dynamic factors. However, given the high convergence between the PCL-R and VRS:SO (especially the Criminality and Treatment Responsiveness factors), how well would each of these instruments predict program attrition after statistically controlling for scores on the other? This research question was evaluated through partial correlations with the binary attrition variable after implementing the necessary statistical controls.

At the outset of these analyses, it is noteworthy to mention that the VRS:SO's relationship to non-completion was investigated on the entire sample of 318 offenders. When the relationship was re-examined on the smaller sample of 113 offenders who had PCL-R ratings, the correlations with respect to treatment attrition were smaller in magnitude, likely reflecting the smaller absolute number of non-completers in this subsample. Moreover, post-treatment rated aggregate factors also had stronger relationships to program non-completion. The non-partialled relationships of selected pre- and post-treatment VRS:SO measures are presented in the topmost part of Table 3.4 (zero order correlations).

In the second set of analyses, the pre-treatment dynamic factor scores were correlated with treatment attrition after partialling out the PCL-R. Although significantly related to attrition in the initial analyses, none of the VRS:SO pre-treatment measures maintained significant relationships to treatment non-completion after partialling out the PCL-R or one
Table 3.4

Zero Order and Partial Correlations For VRS:SO Pre- and Post-Treatment Dynamic Scale Components and the PCL-R in Relation to Program Non-Completion.

<table>
<thead>
<tr>
<th>Measure</th>
<th>VRS:SO Zero Order Correlations</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-treatment dynamic</td>
<td></td>
<td>-.13</td>
</tr>
<tr>
<td>Post-treatment dynamic</td>
<td></td>
<td>-.25**</td>
</tr>
<tr>
<td>Sexual deviance (Pre)</td>
<td></td>
<td>-.05</td>
</tr>
<tr>
<td>Criminality (Pre)</td>
<td></td>
<td>-.14</td>
</tr>
<tr>
<td>Treatment compliance (Pre)</td>
<td></td>
<td>-.12</td>
</tr>
<tr>
<td>Sexual deviance (Post)</td>
<td></td>
<td>-.09</td>
</tr>
<tr>
<td>Criminality (Post)</td>
<td></td>
<td>-.26**</td>
</tr>
<tr>
<td>Treatment compliance (Post)</td>
<td></td>
<td>-.26**</td>
</tr>
</tbody>
</table>

Pre-Treatment VRS:SO Partial Correlations

<table>
<thead>
<tr>
<th>Correlated Measure</th>
<th>Partialled Measure</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-treatment dynamic</td>
<td>PCL-R total</td>
<td>.06</td>
</tr>
<tr>
<td>PCL-R total</td>
<td>Pre-treatment dynamic</td>
<td>-.25**</td>
</tr>
<tr>
<td>Criminality (Pre)</td>
<td>Factor 2</td>
<td>.03</td>
</tr>
<tr>
<td>Factor 2</td>
<td>Criminality (Pre)</td>
<td>-.19*</td>
</tr>
<tr>
<td>Treatment compliance (Pre)</td>
<td>Factor 1</td>
<td>-.01</td>
</tr>
<tr>
<td>Factor 1</td>
<td>Treatment compliance (Pre)</td>
<td>-.21*</td>
</tr>
<tr>
<td>Factor 1</td>
<td>Factor 2</td>
<td>-.16</td>
</tr>
<tr>
<td>Factor 2</td>
<td>Factor 1</td>
<td>-.16</td>
</tr>
</tbody>
</table>

Post-Treatment VRS:SO Partial Correlations

| Post-treatment dynamic              | PCL-R total                    | -.14     |
| PCL-R total                         | Post-treatment dynamic         | -.15     |
| Criminality (Post)                  | Factor 2                       | -.07     |
| Factor 2                            | Criminality (Post)             | -.14     |
| Treatment compliance (Post)         | Factor 1                       | -.12     |
| Factor 1                            | Treatment compliance (Post)    | -.16     |

Note: *p < .05, **p < .01
of its constituent factors. That is, Treatment Completion failed to maintain a significant relationship to attrition after partialing out Factor 1 score, as did Criminality after partialing out Factor 2, and the pre-treatment dynamic component after controlling for PCL-R total score. On the other hand, the respective PCL-R measures did maintain strong relationships to program non-completion after partialling out selected VRS:SO pre-treatment measures (see Table 3.4, middle portion).

These analyses were then repeated using post-treatment dynamic factor ratings. The PCL-R’s relationship to treatment attrition was reduced to non-significance after statistically controlling for the post-treatment rated dynamic factors. Although the selected pre-treatment VRS:SO measures also did not maintain significant relationships to non-completion after partialling out the PCL-R, the partial correlations did increase in magnitude (see Table 3.4, bottom portion).

In sum, PCL-R total, Factor 1, and Factor 2 scores appeared to be particularly strong predictors of program attrition, even after statistically controlling for sexual offense risk via the VRS:SO dynamic factors rated pre-treatment. However, when post-treatment rated factors were incorporated into the analysis, the hypothesized relationships projected at the outset of the study were borne out. The discrepancy may reflect the fact that the PCL-R’s were rated using all available treatment file information from program start to finish – often ratings on PCL-R items were balanced based on changes that the individual made throughout the program (if the changes appeared to be enduring, tangible, and sincere). This was done in order to arrive at as accurate a PCL-R score as possible for each individual prior to his release. Pre-treatment dynamic factor ratings, however, were based on treatment file information up to the halfway point of the treatment program. The post-treatment ratings also
incorporated information that included the time period up until program end, thus representing a more balanced appraisal of the individual on the dynamic factors. In sum, the post-treatment factors and the PCL-R were rated on the same breadth and body of information and possibly reflect a more balanced appraisal of the individual's personality, lifestyle, and sexual offense risk.

3.6 Identifying the Best Predictors of Attrition?

An effort was made to assemble the strongest predicting sequence of variables for the prediction of attrition through the use of stepwise multiple regression. The following variables which had evidenced significant statistical relationships to treatment non-completion were all entered simultaneously in the same step using the "Stepwise" method on SPSS: never married or equivalent, education, yes/no APD diagnosis, sentence length, yes/no stable employment, Criminality (post), Treatment Compliance (post), Factor 1, and Factor 2. The criterion for entry into the regression equation was set at .05 and the criterion for removal was set at .20. The criterion variable in this analysis was the binary treatment attrition variable. Overall, a simple linear combination of two predictors was identified that significantly predicted non-completion, $R = .34 \ (R^2 = .12)$, $F (1, 102) = 6.55, p < .01$. These variables were never married or equivalent ($\beta = .23, t (1) = 2.36, p < .05$) and PCL-R Factor 1 score ($\beta = -.22, t (1) = -2.36, p < .05$).

3.7 Treatment Attrition and Recidivism

The relationship between treatment attrition and recidivism was examined through phi correlations (i.e., Pearson correlations between two categorical variables) and chi square
analyses with respect to multiple sexual and non-sexual recidivism criteria. First, treatment non-completion was not significantly correlated with any of the outcome measures of sexual recidivism. Chi square analyses were also conducted to examine the relative frequency of sexual recidivism among completers and non-completers. More non-completers were charged or convicted of a new sex offense (38.5%) than were completers (29.4%). However, this difference was not large enough in magnitude to achieve statistical significance despite being in the expected direction.

On the other hand, treatment non-completion was significantly inversely correlated with all non-sexual recidivism criteria. As such, failure to complete sex offender treatment programming appeared to be a better predictor of non-sexual re-offending. Chi square analyses revealed considerably larger differences in the base rates of non-sexual recidivism between the program completers and non-completers (see Table 3.5).
Table 3.5

The Relationship of Treatment Attrition to Sexual and Non-Sexual Recidivism: Summary of Correlation and Chi Square Analyses.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Completers (N = 279)</th>
<th>Non-Completers (N = 39)</th>
<th>( \phi ) or ( r_{pb} )</th>
<th>( \chi^2 ) or ( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Sexual Charge or Conviction</td>
<td>M (SD)</td>
<td>%</td>
<td>M (SD)</td>
<td></td>
</tr>
<tr>
<td>Any Sexual Concern</td>
<td>-</td>
<td>29.4</td>
<td>-</td>
<td>-.07</td>
</tr>
<tr>
<td>Any Non-Sexual Violent Conviction</td>
<td>-</td>
<td>33.0</td>
<td>-</td>
<td>-.16</td>
</tr>
<tr>
<td>Any Non-Sexual Conviction</td>
<td>-</td>
<td>55.2</td>
<td>-</td>
<td>-.11</td>
</tr>
<tr>
<td>Any Reconviction</td>
<td>-</td>
<td>62.0</td>
<td>-</td>
<td>-.12</td>
</tr>
<tr>
<td>Total Sexual Charges/Conviction</td>
<td>.61 (1.2)</td>
<td>-</td>
<td>.62 (1.0)</td>
<td>-.00</td>
</tr>
<tr>
<td>Total Sexual Convictions</td>
<td>.41 (.97)</td>
<td>-</td>
<td>.38 (.63)</td>
<td>-.01</td>
</tr>
<tr>
<td>Total Non-Sexual Violent Convictions</td>
<td>.62 (1.2)</td>
<td>-</td>
<td>1.2 (1.5)</td>
<td>-.14</td>
</tr>
<tr>
<td>Total Non-Sexual Convictions</td>
<td>2.7 (4.6)</td>
<td>-</td>
<td>5.8 (7.3)</td>
<td>-.20</td>
</tr>
<tr>
<td>Total New Convictions</td>
<td>3.1 (4.8)</td>
<td>-</td>
<td>6.2 (7.4)</td>
<td>-.19</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01, \( \phi \) = phi correlation, \( r_{pb} \) = point-biserial correlation
4. Discussion

Attrition, or the withdrawal from or termination of treatment and consequent failure to complete program requirements, is a problem endemic to correctional programs. The present study sought to examine attrition from the Clearwater program, including attrition rates, characteristics of treatment non-completers, the relationship of psychopathy and the VRS:SO to treatment attrition, and the relationship of attrition to recidivism. These findings have important implications for the responsivity principle of effective correctional intervention (Andrews et al., 1990; Andrews & Bonta, 1998). The Clearwater program boasted a very low attrition rate of roughly 12% (39 out of 318 sex offenders), with the majority of individuals being discharged for a lack of motivation, disruptive behavior, client request, or system-initiated (e.g., granted conditional release). This is considerably lower than most of the sex offender attrition rates reported in the extant literature, which ranged from a low of 25% in Atascadero Hospital's SOTEP program (Marques et al., 1999) to a high of 77% dropout from a long-term juvenile sex offender treatment program (Hunter & Figueredo, 1999).

4.1 Characteristics of Treatment Non-Completers

In contrast to individuals who successfully completed the program, non-completers were less likely to have ever been married, more likely to have a diagnosis of APD or psychopathy, and to have an unstable employment record prior to incarceration. In addition, non-completers had lower levels of formal education, shorter sentences, and as would be expected, had a shorter length of time spent in treatment. Somewhat surprising, non-completers did not differ from successful program completers on their age upon admission or
Axis I psychiatric diagnosis (e.g., substance abuse, any serious mental illness). Rather, a higher proportion of treatment completers had substance use disorders or a serious mental illness (e.g., bipolar, depression, schizophrenia). In some ways, these null findings are encouraging in the sense that the Clearwater program, a high intensity comprehensive sex offender treatment program, is able to successfully accommodate clients with special treatment needs (e.g., substance abuse programming, psychotropic medication). However, these findings also point to other responsivity considerations (see final section of Discussion) such as cognitive ability and education level, the presence of serious, disruptive personality disorders such as APD and psychopathy, and level of risk for recidivism (sexual, violent, general) presented by the offender.

4.2 The VRS:SO and Treatment Attrition

Previous research (e.g., Browne et al., 1998; Wormith & Olver, 2002) has found that many of the variables predictive of attrition from correctional treatment also tend to be predictive of recidivism. The relationship of sexual offense risk to dropout was tested through comparing treatment completers and non-completers on the Static 99 and the various VRS:SO scale components. Interestingly, completers and non-completers did not differ on the Static 99 and the VRS:SO static factors, although non-completers scored significantly higher on dynamic VRS:SO scale components. Thus, treatment non-completers appeared to be higher risk for sexual recidivism by virtue of their dynamic factor scores. However, ultimately some doubt remained about whether being high risk for sexual recidivism was in itself, a potential explanatory mechanism for treatment attrition for at least two reasons: 1) static measures of sexual offense risk did not discriminate treatment completers from non-
completers, nor did criminal history, and 2) most high risk sex offenders successfully completed the Clearwater program (81.7%). Other factors aside from risk for sexual recidivism were likely strong contributors to program attrition (e.g., psychopathy).

4.3 Psychopathy and Treatment Attrition

The small extant literature has demonstrated psychopaths to be abysmal treatment candidates, typically responding minimally or very poorly to intervention, and being particularly vulnerable to dropout (Ogloff et al., 1990; Rice et al., 1992). Consistent with previous findings, a strong relationship emerged between psychopathy and attrition from the Clearwater program. For instance, a higher proportion of the dropouts were psychopaths in comparison to the program completers (56% and 19% respectively), and PCL-R total scores were highly correlated with non-completion.

Some encouraging findings did emerge in that psychopaths and non-psychopaths did not significantly differ in the amount of therapeutic change or improvement evidenced over the course of their stay on Clearwater, suggesting that even psychopaths may have derived some benefit from their time spent in programming, which on average was still fairly substantial (over 6 months). Moreover, the fact that PCL-R score was not inversely related to length of time spent in treatment suggests that more psychopathic individuals were not necessarily doomed to leave the program early. In fact, in my perusal of the treatment files while rating the PCL-R's and treatment attrition protocol, it was noticed that occasionally some very psychopathic individuals remained for (or attempted) two treatment programs in light of their limited improvement and slow progress evidenced during the first program. It was encouraging to see that in many respects, high risk-high needs cases were often targeted
for more intensive treatment unless the individual seemed to be particularly unmotivated, disruptive, emotionally volatile, or posed safety concerns to staff and other patients. In such cases, not uncommonly the patient was re-admitted to the Clearwater program, sometimes to eventually complete the program successfully, and sometimes not.

4.4 A Comparative Evaluation of the VRS:SO and PCL-R in the Prediction of Attrition

The VRS:SO dynamic scale component and its aggregate factors along with the PCL-R and its constituent factors were found to be strong correlates of treatment attrition through independent analyses. However, the relative contributions of these measures to program attrition were also examined in order to determine whether treatment dropouts were merely high risk sex offenders, or perhaps differed in other ways that were independent of their risk for sexual recidivism. To test this proposal, partial correlations were computed between the VRS:SO scale components and attrition while controlling for the PCL-R, and between the PCL-R and attrition while controlling for the VRS:SO. At least two interesting trends emerged: 1) the post-treatment rated dynamic factors were considerably stronger correlates of attrition than the pre-treatment rated factors, and 2) the PCL-R appeared to be a considerably stronger predictor of program attrition than the VRS:SO. These will each be addressed in turn.

First, the VRS:SO post-treatment dynamic scale total, Criminality factor and Treatment Compliance factor bore markedly stronger relationships to non-completion than their respective pre-treatment counterparts. One possible explanation proposed for this is that the post-treatment factors are rated using the entire breadth and body of file information available, including any improvement or deterioration evidenced by the offender over the
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course of treatment. The factor scores are then adjusted or calibrated to reflect these changes, for better or for worse, and thus would likely be a stronger predictor of program completion. For instance, a patient who deteriorated over the course of treatment (e.g., became more aggressive, hostile, less motivated) and who was eventually discharged, would have a corresponding increase in his Criminality and Treatment Compliance factor scores. Conversely, a patient who improved considerably (e.g., became less aggressive, more motivated, achieved greater insight) would experience consequent reductions in his Criminality and Treatment Compliance factor scores and likely remain in the program until completion. The fact that the pre-treatment factors do predict program non-completion, however, is important and informative, although it seems much of this relationship was explained by the PCL-R.

The second interesting trend was that the PCL-R was consistently a strong and significant predictor of program non-completion after partialling out selected VRS:SO dynamic scale components, although the VRS:SO failed to yield any significant relationships to program attrition after partialling out the PCL-R. This was most evident for the pre-treatment factors. After rerunning the same analyses while partialling out the post-treatment dynamic scale components, the PCL-R's relationship to attrition was reduced substantially.

Both Factor 1 and Factor 2 seemed to be important contributors to treatment non-completion, with each factor retaining fairly strong relationships to program attrition after controlling for the other. However, only Factor 1 evidenced some form of relationship to length of treatment stay, and in a stepwise regression analysis, was one of two key variables (the other being "never married") that most strongly predicted program attrition. Why might
psychopathy be such an important predictor of attrition and how might this relationship be explained?

First of all, Factor 1 taps a set of interpersonal and emotional attributes that reflect a callous indifference towards others, lack of remorse for wrongdoings, a failure to admit or accept culpability for those wrongdoings, a shallow depth and restricted range of affect, deceitfulness, manipulation, brazen arrogance and conceit, and an insincere and annoyingly glib way of relating to others. Put simply, people with several of these attributes are difficult to get along with, they are abrasive, they are stubborn to change, and often see little about themselves that require changing – on the contrary, they may see others as the ones who need to accommodate to them. As one convicted murderer-rapist I worked with once said, "it's the staff here [on Clearwater] who need programming." The interpersonal style of psychopaths may undermine their ability to remain in treatment, and the emotional style may thwart the gains they are capable of making. Emotionally, psychopaths tend to engage in extreme denial or minimization of their offenses, they may blame the victim for her fate, or extend the blame to society or extenuating circumstances (e.g., being drunk, temporary insanity, in a blackout). In addition, an individual will have tremendous difficulty taking the perspective of his victim and emotionally identifying with her anguish when he is incapable of experiencing similar emotions himself, or is too egocentric to explore perceptions outside of his own.

Secondly, Factor 2 taps a chronically unstable, antisocial lifestyle. A review of the behavioral manifestations of the items loading on this factor may illustrate why it seems to be predictive of attrition. For instance, individuals who score high on Factor 2 tend to have a sporadic and unstable work record. They tend to have few job skills, tend not to complete tasks or projects set out before them, get bored easily, and prefer to live off social assistance,
vulnerable people, or to support themselves through crime. Factor 2 also reflects some propensity for violence. These attributes do not bode well for an individual who is forced to sit still in a group or classroom setting, taking notes, completing homework assignments, and engaging in mentally and emotionally demanding tasks such as personal reflection and introspection. Factor 2 seems to partly reflect a poor work ethic, laziness, and a lack of work-related or academic skills -- indeed, this variable was very highly negatively correlated with employment ($r = -.51$). Moreover, the correlation between Factor 2 and treatment non-completion was also reduced substantially (from $r = -.24$ to -.15) after partialling out a binary yes/no stable employment variable in a supplementary analysis.

Thus, a possible reason that the VRS:SO may not hold up in the prediction of program attrition may be because it is primarily a measure of risk for sex offense recidivism (which seems to bear a relatively small relationship to dropout) and less a measure of interpersonal/emotional style and chronic antisociality (which appear to hold a stronger relationship to dropout).

4.5 Treatment Attrition and Recidivism

Interesting findings emerged when the relationship of treatment non-completion to recidivism was evaluated. Chi square and correlational analyses revealed that program non-completion was a particularly strong predictor of several non-sexual recidivism criteria that included the likelihood of violent and general re-offending, as well as the density of re-offending. On the other hand, attrition did not significantly predict sexual offense recidivism, although a greater proportion of treatment dropouts went on to commit new sex offenses (39%) after their release than did successful completers (29%). Although failure to complete
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sex offender treatment does appear to have adverse implications for sexual recidivism, the failure to attain significance on this finding may be attributable to insufficient power as reflected in the small number of program dropouts.

Why might attrition from a sex offender treatment program have such dire implications for non-sexual recidivism? As a comprehensive cognitive-behavioral program, the Clearwater program has several psychoeducational groups and therapeutic interventions which target myriad criminogenic needs, including those not specifically linked to sexual offending such as family violence, relationships, anger management, assertiveness, and attitudes, values and beliefs. The RPC offers additional in-house programs including substance abuse programs (e.g., AA, NA, OSAPP), occupational therapy (e.g., life skills, money management), and opportunities for educational upgrading. If properly delivered, all of these resources could effectively reduce risk for all forms of recidivism; hence, failure to complete the Clearwater program would also entail a resultant loss of these resources and little decrement in the patient’s propensity to re-offend. In addition, given the reasons why patients are often discharged (e.g., lack of motivation, disruptive behavior), it is unlikely they have internalized much from the program and to have done much to mitigate their own risk to re-offend.

It is also possible that the modal treatment non-completer may not have been particularly high risk to sexually re-offend (especially, since non-completers did not differ from treatment completers on actuarial risk measures). A profile of the modal non-completer may reflect a highly criminalized individual, with limited formal education, poor work record, who has never had a stable romantic relationship (i.e., been married or equivalent), and who may have an impaired capacity to form harmonious lasting relationships, assume
responsibility, or establish insight into their problem areas (e.g., as demonstrated by high Factor 1 and poor Treatment Compliance scores). Such an individual may present as a substantial risk for non-sexual violent or general recidivism, but pose relatively less risk for sexual recidivism.

4.6 Responsivity Considerations

The responsivity principle posits that correctional intervention will be most effective when it is matched to the learning style and cognitive capabilities of its clients (Andrews & Bonta, 1998). The responsivity principle has been further extended to include any and all aspects of programming that address certain client characteristics to increase the effectiveness of programming and reduce client dropout, including cultural factors (e.g., language, cultural background of staff, culture-specific interventions), motivation, education level and intellectual development, client psychopathology, and so forth.

Many of the findings in the current study have implications for the responsivity principle. One such factor is education level. For instance, clients with limited formal education may not possess the academic skills to comprehend the material presented in psychoeducational groups to complete homework assignments, or major therapeutic projects (e.g., developing a crime cycle or relapse prevention plan), and thus may be increasingly vulnerable to dropout. However, clients with limited cognitive-intellectual ability can be given individual assistance in the completion of homework assignments, therapeutic projects and the like. Also, many clients undergo educational upgrading to improve their reading and writing skills prior to entering a correctional treatment program. Education level also stands to impact risk assessment, as clients may lack the insight to understand their problem areas or
have insufficient verbal skills to articulate them in an accurate manner. As such, limited formal education may undermine the quality of information that the client is able to provide to accurately appraise their risk and progress in treatment.

A second potential responsivity issue that emerged from the findings is employment background, which can be argued to reflect work ethic. Clients with scattered, tenuous work histories and criminalized lifestyles (e.g., Factor 2) may lack the work ethic, diligence, and responsibility, to complete a labor intensive and cognitively taxing treatment program. A related and often problematic issue is motivation -- clients may lack the requisite motivation to change comfortable and entrenched ways of thinking and behaving, to attend groups, and to complete the assignments and tasks set out before them. In these cases, motivational interviewing might be used to mobilize and enhance client motivation to engage in difficult therapeutic work and attempt behavioral change.

A third responsivity issue concerns the presence of some form of disruptive, unstable personality disorder such as APD or psychopathy. Both diagnostic categories were strongly linked to program attrition, with 71% of non-completers receiving discharge diagnoses of APD and 56% meeting the PCL-R criteria for psychopathy. For various reasons, these diagnostic groups can be quite recalcitrant to intervention, especially psychopaths. Both groups present an elevated risk for violent, general, and to some degree sexual, recidivism and are characterized by fairly criminalized, marginal lifestyles. And as outlined above, psychopaths tend to have an interpersonal and emotional style that tends to be antagonistic towards co-patients and staff, and which may limit the gains they are capable of garnering from treatment (e.g., changing attitudes, establishing empathy, etc.). In their treatise on the treatment of violent psychopathic offenders, Wong and Hare (in press) emphasize specialized
staff training to work effectively with psychopaths. Treatment programs would focus on
establishing insight and assuming responsibility for offending behavior, changing
procriminal attitudes, developing skills to manage problems and to meet financial, personal,
and emotional needs in prosocial ways. However, less emphasis would be placed on directly
altering the fundamental character structure (i.e., Factor 1) of the psychopath.

A final responsivity issue is the notion of cultural background (e.g., Native ancestry).
Importantly, there was no difference in program completion between Native and non-Native
offenders in the current study. Nevertheless, most treatment programs are delivered in spoken
and written English by Caucasian facilitators. Some of the treatment goals of mainstream
treatment programs may also conflict with the norms, attitudes and values of Aboriginal
culture. When judiciously applied, responsivity considerations could entail adapting
treatment programs to be more sensitive to cultural factors. For instance, in recent years, the
RPC has incorporated traditional Aboriginal treatment approaches including the sweat lodge,
prayer, and healing ceremonies. Male and female Elders are also on staff, delivering
Aboriginal treatment services and coming from the same cultural background as their clients
and speaking their mother tongues. Perhaps owing to these and similar responsivity
considerations the Clearwater boasted lower attrition rates than commonly seen in other sex
offender programs. In tandem, mainstream and traditional therapeutic approaches could
present a promising combination to reduce attrition.

With these responsivity factors in mind, provisions can be made to accommodate
these clients' specific needs, ideally to maximize the effectiveness of correctional treatment
in reducing recidivism and minimizing client attrition.
4.7 Shortcomings of the Present Study

One potential shortcoming of the current study involves the use of a binary treatment attrition variable, which may result in the loss of potentially important information (e.g., variation in the number of sessions attended) (Rooney & Hanson, 2001). Rooney and Hanson (2001) used survival analyses to track the attrition of males from a wife-battering program. Through this technique, the authors could ascertain at which point the clients dropped out (e.g., after 8 out of 12 sessions), thus treating attrition as a continuous measure. Although this strategy was contemplated for the current study, it would have been difficult to achieve since the Clearwater program varied in length over different time periods, and there was not always a neatly defined, fixed period of time that participants remained in the program prior to completing it. In addition, a treatment dropout did not always spend less time in treatment than a successful completer -- on occasion, unsuccessful completers would be granted extra opportunities to remain in the program to complete it, although not always being successful.

Another potential shortcoming is the use of a relatively conservative operational definition of treatment non-completion. In the current study, an individual was declared a non-completer only if he failed to successfully complete the Clearwater program at any and all points over the course of his index sentence. Thus this would not include individuals who had dropped out of the Clearwater program earlier in their sentence, only to return later to complete it. Perhaps these individuals had changed in some capacity that had allowed them to complete treatment when they were later readmitted? Perhaps the same factors that discriminated dropouts from completers had contributed to their failure to complete the program earlier. These are important issues that could be addressed perhaps through employing multiple definitions of treatment non-completion in future research.
5. GENERAL DISCUSSION

5.1 Dissertation at a Glance: Summary of General Themes and Key Findings

The current volume of work was a compilation of four broad studies that evaluated the psychometric properties of the VRS:SO; in particular, its relationship with several clinically and theoretically important criteria including sexual recidivism, psychopathy, and treatment attrition. The first study entailed the development of the first version of the VRS:SO which included Hanson and Thornton’s (1999/2000) Static 99 and 19 dynamic variables empirically, conceptually, and theoretically linked to sexual recidivism. The instrument was rated on 321 sex offenders followed up approximately 8 years after their release. The VRS:SO demonstrated good internal consistency, and a factor analysis of the dynamic portion of the instrument yielded three orthogonal factors labeled Sexual Deviance, Criminality, and Treatment Compliance. The Static 99 and dynamic factors predicted multiple sexual recidivism criteria. As anticipated, the post-treatment portion of the instrument was a stronger predictor than the pre-treatment component. In addition, the dynamic component of the instrument maintained a significant relationship to sexual offense recidivism after statistically controlling for the Static 99 through multiple regression analyses.

Study 2 involved the revision and revalidation of the VRS:SO. These changes entailed shortening the dynamic component of the instrument to 16 items and developing a new actuarial scale to replace the Static 99 as the static component of the VRS:SO. A collection of variables (e.g., marital status, victim type, offense history, age variables, etc.) empirically related to sexual recidivism were rated on the entire pool of offenders. The new static component of the scale was constructed on a randomly selected half of the sample, and
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then cross-validated on the remaining half. The new scale proved to be a strong predictor of multiple sexual recidivism criteria in both the construction (mean $r = .40$, mean ROC = .74) - and validation samples (mean $r = .29$, mean ROC = .73). To a lesser degree, the instrument also predicted non-sexual violent recidivism. Using hierarchical regression analyses, the dynamic component of the scale marginally predicted sexual recidivism after controlling for static factor score, although the static factors remained strong predictors after controlling for the dynamic factors. Finally, ROC's were computed at 2, 3, 5, 8, and 10 year follow-up intervals for the static, post-treatment dynamic, and VRS:SO total scores as a means of examining the stability of the instrument's predictive accuracy for sexual recidivism over different follow-up periods. Maximal predictive accuracy of the static and dynamic factors was achieved at approximately 3 to 5 years follow-up, and as would be expected, the static factors proved to be stronger long-term predictors of sexual recidivism.

Study 3 examined the relationship between psychopathy (as rated by Hare's (1991) PCL-R), sexual deviance, and sexual offense recidivism in a stratified sample of sex offenders, randomly drawn from the original pool of 321 offenders. The PCL-R showed acceptable convergence with the VRS:SO in a theoretically meaningful way, and psychopathic sex offenders tended to register higher scores on the various dimensions of the VRS:SO and the Static 99 than non-psychopathic sex offenders. The PCL-R demonstrated a marginally significant relationship to sexual recidivism (highest $r = .18$), with Factor 1 yielding a considerably stronger relationship to this outcome than Factor 2. Consistent with previous findings (e.g., Harris et al., 1991, 1993; Hart et al., 1988; Rice et al., 1991, 1992, 1994; Serin, 1996), the PCL-R remained a strong predictor of violent and general recidivism, even after controlling for criminal history and age in hierarchical regression analyses.
Finally, the relationship of psychopathy, sexual deviance, and recidivism was examined through several statistical analyses, including survival analysis. Consistent with Rice and Harris (1997), sexually deviant psychopaths evidenced a higher and faster rate of sexual recidivism than non-deviant psychopathic and non-psychopathic sex offenders.

Study 4 examined attrition from sex offender treatment. The Clearwater program boasted a low rate of attrition (12%) in comparison to the rates reported from other programs (25% to 77%). Offenders who failed to complete sex offender treatment tended to be of lower education level, had a more sporadic employment history, were less likely to be married, tended to be higher risk for sexual recidivism (as assessed by the VRS:SO), and were especially likely to carry a diagnosis of Antisocial Personality Disorder or to meet the PCL-R criteria for psychopathy. Moreover, Factors 1 and 2 continued to be very strong predictors of treatment non-completion after partialling out the VRS:SO’s Treatment Compliance and Criminality factors, respectively. The opposite, however, was not observed. This seems to suggest that risk for sexual recidivism per se, is not linked to program attrition. Rather, Factor 1 seems to represent an antagonistic personality style that may serve to undermine the individual’s likelihood of completing a treatment program, and which may also serve to attenuate the gains he is capable of making (e.g., by virtue of an incapacity for empathy, lack of emotionality, etc.). Factor 2, on the other hand, may be a proxy for poor work ethic and inability to fulfill obligations or commitments, which may contribute to drop out due to a lack of motivation or progress made in the treatment program. Treatment non-completion also bore a strong and significant relationship to non-sexual recidivism (violent and general), and program dropouts evidenced higher base rates of sexual recidivism (39%).
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than program completers (29%). This difference, however, was not large enough to achieve statistical significance.

Over the last few years, the field of risk assessment has witnessed some important changes in the conceptualization of risk and the practice of risk assessment. This includes: 1) the disaggregation of dynamic risk factors into acute and stable, 2) repeated evaluations of an offender’s risk level over time, 3) resorting to alternative strategies to summarize an offender’s level of risk, as opposed to using broad bins or risk categories, 4) the use of stage-matched interventions in sex offender treatment, 5) the need to continually update and revise risk assessment instruments to keep current with developments in the field, 6) the need for multi-modal assessment, 7) the relevance of psychopathy, and 8) the relevance of treatment attrition.

5.2 Some Current Directions in the Assessment of Risk for Sexual Recidivism

One important ideological shift is in the conceptualization of dynamic risk factors. Rather than merely resting complacent with the notion that “they” change and therefore should be targeted for treatment, Karl Hanson and colleagues subdivide them into the categories of acute and stable. Stable risk factors are relatively enduring psychological variables related to risk that may change with intervention (e.g., sex offender attitudes, antisocial lifestyle). Acute risk factors are more temporally fleeting factors, which fluctuate consistently and tend to be more proximal to a sex offense (e.g., substance intoxication, victim access). This seems to be an important distinction, and one that may have important implications for the community supervision of sex offenders. For instance, to the extent that certain acute risk factors are present can the offender be considered imminent risk to re-
offend. Perhaps during these moments of imminent risk, community supervision officers can intervene (e.g., encourage the offender to consult his support network, counsel the offender on avoiding high risk situations, notifying the police under extreme circumstances, etc).

A second important issue concerns repeatedly assessing risk. As risk for sexual recidivism (or any other form of recidivism for that matter) is a dynamic phenomenon which can be adjusted through treatment, it stands to reason that risk should be periodically reevaluated to assess for such change. For instance, in a community setting, salient acute factors might be consistently checked to see if the offender is in danger of falling into his offense cycle. Within an institutional setting, the data from the current research suggests that it may be fruitful to reevaluate risk every two to three years, and to make corresponding changes (if any) to the person's risk classification. This would entail re-administering sex offender risk-need instruments such as the MnSOST, SONAR, SVR-20, VRS:SO etc. every few years or so.

Moreover, as stated earlier, one of the benefits of assessing both static and dynamic aspects of risk is that the offender’s global risk level can be adjusted accordingly. For instance, a middle-aged incest offender with little formal criminal justice involvement would likely rate low on the Static 99. However, the overall picture changes dramatically if it turns out that he also has an extensive history of victimizing family members (irrespective of gender) across multiple generations, espouses the legitimacy of incest, lacks insight into the causes of his sexual offending, and presents as poorly motivated and uncooperative for treatment. In the majority of cases, the dynamic risk level of an offender will correspond with his actuarial risk level, especially given the reasonably strong relationship between the Static 99 and pre-treatment dynamic component. For the most part, actuarially low risk offenders
also appear to be low-need offenders; however, for those high risk offenders who are capable of eluding legal intervention (e.g., through avoiding detection, threatening victims, etc.), the dynamic portion of the instrument will aid in capturing a more accurate picture of the offender’s risk.

Thirdly, the use of “bins” to classify offenders into different risk categories (e.g., low, medium, high) has been a common practice in Corrections for several years with important merits. One advantage includes the fact that risk bins provide a convenient summary of a large and complex body of information for decision makers to base their recommendations on. In addition, the fairness and accuracy of a risk appraisal will be maximized when it is based on the use of systematic and actuarially based procedures. However, as mentioned by Wormith (2001), a better practice may be to couch risk estimates in terms of probabilities of recidivism (e.g., the percentage of offenders in the norm group with a given score who sexually recidivate) rather than grouping offenders into relatively crude risk categories. In a classic paper, Monahan (1996) also recommended that psychologists should ground their predictions in the language of probabilities as meteorologists do. For instance, a weather forecast that calls for a 70% chance of rain seems somewhat more informative than merely saying that there is a high risk for precipitation. In a similar vein, stating that a given offender with a particular score on a certain risk assessment instrument has a 40% chance of sexually re-offending within 5-years of his release (as is the case with individuals receiving a score of 6 or higher on the Static 99), also seems more informative than merely saying that he is high risk.

Fourth, with the emergence of risk-need instruments, an important mandate of risk assessment has been to identify criminogenic factors to be targeted for treatment. However, a
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recent consideration involves matching the type of intervention used with the offender's readiness for change. In her work with domestic batterers, Levesque (2002) advocates for the use of stage-matched interventions; that is, matching the nature and quality of a treatment approach with the client's stage of change, as per Prochaska et al.'s (1992) model. For instance, a high risk sex offender who is primarily in the precontemplation stage of change with respect to most of his criminogenic needs would likely benefit most from a different intervention strategy than a high risk sex offender primarily in the preparation or action stage. Some of the differences might be in the amount of confrontation offenders are capable of tolerating, the homework loads, cognitive challenge of the program, and amount of personal disclosure required. Via the stages of change model, the VRS:SO can be used to inform the treatment process: 1) through identifying targets for treatment, and 2) through providing direction for an advisable treatment strategy matched to the offender's primary stage of change.

A fifth consideration involves the consistent revision of sex offender risk assessment technology in order to keep current with ongoing developments in the field. For instance, the RRASOR was revised to create the Static 99, which in turn, is currently undergoing revision. Each successive revision of this family of instruments has yielded an actuarial tool with greater predictive accuracy, as new risk factors are added, modified, or re-weighted. Similarly, it is important to revise the VRS:SO, as needed, to keep current with advances in sex offender risk assessment, ideally to continually enhance the instrument's predictive accuracy, reliability, and generalizability across different sex offender populations.

A sixth consideration entails the necessity of adhering to a comprehensive multi-method approach in the assessment of risk for sexual recidivism. While the VRS:SO is
intended to provide a comprehensive appraisal of risk, ideally it should be supplemented with other forms of information. This may include data from phallometric testing, paper and pencil measures of sex offender attitudes (e.g., the Sex Offender Attitude Questionnaire) or sexual functioning, an assessment of psychopathy (if relevant), other sex offender risk instruments (e.g., RRASOR, Static 99), or risk assessment measures for violent and general recidivism. The results from multiple assessment measures of risk ideally should converge with one another in the same direction to yield a more consummate and global appraisal of the individual’s risk for sexual recidivism.

A seventh issue concerns the role of psychopathy in sex offender risk assessment. The existing body of research, including the current study, points to a small to moderate relationship between the PCL-R and sexual recidivism (e.g., Barbaree et al., 2001; Firestone et al., 1999; Rice et al., 1990). However, the PCL-R appears to contribute marginally beyond that of current instruments designed specifically for the purpose of appraising risk for sexual recidivism. It is possible that the PCL-R may have greatest utility among more criminalized sex offenders (e.g., rapists, mixed offenders), who are more likely to amass a history of non-sexual offenses and who present a greater risk for non-sexual violent and general recidivism. That being said, in most cases, a high score on the PCL-R will not bode well for a successful release. However, a low score on the PCL-R does not necessarily render an individual low risk for sexual recidivism, as exemplified by the low mean PCL-R ratings registered by child molesters. Thus, the PCL-R should be used with caution in sex offender risk assessment and should not be used as a “stand alone” tool. Some data from Study 3, in keeping with past findings (e.g., Rice & Harris, 1997), suggest that a combination of psychopathy and a
predilection for deviant sexual stimuli may also potentiate an offender's risk for sexual recidivism.

Finally, the importance of completing sex offender treatment programming in mitigating risk is a new and important direction in risk assessment. It is now well established that validated cognitive-behavioral programs are effective in reducing sexual recidivism (e.g., Gallagher et al., 1999; Nicholaichuk et al., 2000). Importantly, the opposite has also been observed – that failure to comply with sex offender treatment can have adverse implications for risk for sexual recidivism (e.g., Hanson & Harris, 2000; Marques, 1999). Part of this may also be attributable to the fact that treatment dropouts appear to be higher risk offenders (as suggested by the data in the current study), who ironically present in greater need of treatment. As such, an important component of risk assessment will be evaluating compliance with sex offender treatment and any changes in risk (either good or bad) that may occur as a result. High risk sex offenders who fail to cooperate with treatment are not likely to be good release candidates; however, those who do may merit an opportunity for release.

5.3 Some Final Words

The appraisal of risk for sexual offense recidivism remains a daunting task for clinicians, despite the advances made in the technology available to identify high risk men to be targeted for intervention. Base rates continue to remain low and pose nettlesome methodological issues for researchers. Many clinicians continue to rely heavily on revered measures such as the "gut feeling index" despite the overwhelming evidence supporting the superior predictive accuracy of actuarial methods (Andrews & Bonta, 1998). Finally, the
financial costs exacted by the tax payers to re-incarcerate recidivists, and the incalculable emotional and psychological costs suffered by the women and children whose lives are irrevocably shaken by sexual recidivists has not decreased any. The emergence of newer instruments such as the RRASOR, SORAG, Static 99, MnSOST, SVR-20, SONAR and VRS:SO, and an increased knowledge about the predictors and mitigators of sexual recidivism has improved our capacity to predict considerably beyond clinical judgment alone. Armed with this cautious optimism, clinicians and researchers will continue their progress in the assessment and treatment of sexual offenders.
References


anger control treatment programme with reference to source of referral, age of client, and external motivating factors. *Journal of Mental Health, 6*, 47-54.


APPENDIX A

Violence Risk Scale Items – Version 2
(Wong & Gordon, 1999)

Static Factors

S1 Current Age
S2 Age At First Violent Conviction
S3 Number of Young Offender (Juvenile) Convictions
S4 Violence Throughout Lifespan
S5 Prior Release Failures/Escapes
S6 Stability of Family Upbringing

Dynamic Factors

D1 Violent Lifestyle
D2 Criminal Personality
D3 Criminal Attitudes
D4 Work Ethic
D5 Criminal Peers
D6 Interpersonal Aggression
D7 Emotional Disinhibition
D8 Violence During Incarceration
D9 Weapon Use
D10 Insight into the Cause of Violence
D11 Mental Illness
D12 Substance Abuse
D13 Stability of Relationships with Significant Others
D14 Community Support
D15 Released to High Risk Situations
D16 Violence Cycle
D17 Impulsivity
D18 Cognitive Distortion
D19 Compliance with Community Supervision
D20 Security Level of Releasing Institution
### APPENDIX B

#### The Static 99

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<thead>
<tr>
<th>Risk Factor</th>
<th>Codes</th>
<th>Score</th>
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<tbody>
<tr>
<td>Prior Sex Offences (same rules as in RRASOR)</td>
<td>Charges Convictions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None None</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1-2 1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3-5 2-3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>6+ 4+</td>
<td>3</td>
</tr>
<tr>
<td>Prior Sentencing Dates (excluding index)</td>
<td>3 or less</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>4 or more</td>
<td>1</td>
</tr>
<tr>
<td>Any Convictions for Non-Contact Sex Offences</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Index Non-Sexual Violence</td>
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<td>0</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
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<td>Prior Non-Sexual Violence</td>
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<td>0</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Any Unrelated Victims</td>
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<td>0</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Any Stranger Victims</td>
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</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>Any Male Victims</td>
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</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>Young</td>
<td>Aged 25 or older</td>
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</tr>
<tr>
<td></td>
<td>Aged 18 – 24</td>
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</tr>
<tr>
<td>Single</td>
<td>Ever lived with lover for at least two years?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Total Score</td>
<td>Add up scores from individual risk factors</td>
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APPENDIX C

*The Violence Risk Scale: Sexual Offender Version*

*Dynamic Factors*

<table>
<thead>
<tr>
<th>Dynamic Risk Factors (A+B)</th>
<th>Part A</th>
<th>Stage</th>
<th>Part B</th>
<th>I or N</th>
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</thead>
<tbody>
<tr>
<td>Part A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1 Sexually Deviant Lifestyle</td>
<td>0 1 2 3</td>
<td>MAPPC</td>
<td>-1.5 -1 -0.5</td>
<td>I N</td>
</tr>
<tr>
<td>D2 Sexual Compulsivity</td>
<td>0 1 2 3</td>
<td>MAPPC</td>
<td>-1.5 -1 -0.5</td>
<td>I N</td>
</tr>
<tr>
<td>D3 Offense Planning</td>
<td>0 1 2 3</td>
<td>MAPPC</td>
<td>-1.5 -1 -0.5</td>
<td>I N</td>
</tr>
<tr>
<td>D4 Criminal Personality</td>
<td>0 1 2 3</td>
<td>MAPPC</td>
<td>-1.5 -1 -0.5</td>
<td>I N</td>
</tr>
<tr>
<td>D5 Cognitive Distortions</td>
<td>0 1 2 3</td>
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</tr>
<tr>
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<td>D11 Acute Stress</td>
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<td>I/N</td>
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<td>D12</td>
<td>Community Support</td>
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APPENDIX D
The Psychopathy Checklist Revised (Hare, 1991)

<table>
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<tbody>
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<td>1. Glibness/superficial charm</td>
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<tr>
<td>2. Grandiose sense of self worth</td>
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<td>3. Need for stimulation/proneness to boredom</td>
<td>0 1 2</td>
</tr>
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<td>4. Pathological lying</td>
<td>0 1 2</td>
</tr>
<tr>
<td>5. Conning/manipulative</td>
<td>0 1 2</td>
</tr>
<tr>
<td>6. Lack of remorse or guilt</td>
<td>0 1 2</td>
</tr>
<tr>
<td>7. Shallow affect</td>
<td>0 1 2</td>
</tr>
<tr>
<td>8. Callous/lack of empathy</td>
<td>0 1 2</td>
</tr>
<tr>
<td>9. Parasitic lifestyle</td>
<td>0 1 2</td>
</tr>
<tr>
<td>10. Poor behavioral controls</td>
<td>0 1 2</td>
</tr>
<tr>
<td>11. Promiscuous sexual behavior</td>
<td>0 1 2</td>
</tr>
<tr>
<td>12. Early behavior problems</td>
<td>0 1 2</td>
</tr>
<tr>
<td>13. Lack of realistic, long-term goals</td>
<td>0 1 2</td>
</tr>
<tr>
<td>14. Impulsivity</td>
<td>0 1 2</td>
</tr>
<tr>
<td>15. Irresponsibility</td>
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<tr>
<td>16. Doesn’t accept responsibility</td>
<td>0 1 2</td>
</tr>
<tr>
<td>17. Many short-term marital relationships</td>
<td>0 1 2</td>
</tr>
<tr>
<td>18. Juvenile delinquency</td>
<td>0 1 2</td>
</tr>
<tr>
<td>19. Revocation of conditional release</td>
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</tr>
<tr>
<td>20. Criminal versatility</td>
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</tr>
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</table>

Factor 1 score: 
Factor 2 score:  
Total PCL-R score:
APPENDIX E

Data Collection Protocol For Treatment Attrition, Recidivism, and Related Variables

Subject #: __________
FPS#: ______

BASIC DEMOGRAPHICS:

Date of Birth (yy/mm/dd): ______

Ethnicity:
1) Caucasian
2) Aboriginal
3) Asian
4) African Canadian
5) Add as Needed

Education (enter total years completed): ______

Employment Background:
1) Never employed
2) Frequently unemployed (more than 6 months of the last 1 year prior to current sentence)
3) Never employed a full year
4) Regularly employed (2-years and up)

Marital Status:
1) Never married
2) Divorced/ separated
3) Currently common-law/married
4) Widowed

CRIMINAL HISTORY/ INDEX OFFENSE

Index Offense:
1) Sexual (contact)
2) Sexual (no-contact)
3) Non-Sexual Violent
4) Non-Sexual Nonviolent

Sex Offender Type:
1) Rapist
2) Child Molester
3) Mixed
4) Incest
CRIMINAL HISTORY/ INDEX OFFENSE (CONT'D)
Date of first adjudicated sexual offense (charge or conviction) (yy/mm/dd): ______

Age at first adjudicated sexual offense (DOB – Date of 1st sex offense): ______

Offense History (Do not include index offense when rating):
Total prior charges for sexual offenses: ______
Total prior convictions for sexual offenses: ______
Total prior sexual offenses (charges + convictions) = ______
Total prior convictions for non-sexual violent offenses: ______
Total prior non-sexual nonviolent convictions: ______
Total prior non-sexual convictions (non-sexual violent + non-sexual non-violent) = ______
Total prior sentencing dates: ______

Offense History (Count the index sexual offense):
Number of male victims: ______
Number of female victims: ______
Number of unrelated victims: ______
Number of related victims: ______

INSTITUTIONAL INFORMATION:
Name of Parent Institution: ______
Security Level:
1) Minimum
2) Medium
3) Maximum
Sentencing date (yy/mm/dd): ______
Index Sentence Length (years, months, and days): ______

PROGRAM INFORMATION:
Date Admitted to Clearwater Program (yy/mm/dd): ______
Age upon admission (Admission Date - DOB): ______
Date discharged from the Clearwater Program (yy/mm/dd): ______
PROGRAM INFORMATION (CONT’D)
Total length of stay (months): __________

Did the offender successfully complete the program? (Please circle one) Yes/ No

Reason for discharge (if applicable):
1) Disruptive behavior
2) Low motivation/poor effort
3) Institutional infractions
4) Security concerns
5) Patient requested
6) Add as needed

Initiator of Discharge (if applicable):
1) Staff-initiated
2) Client-initiated
3) Mutually-initiated
4) System-initiated

PSYCHIATRIC INFORMATION
Axis I DSM diagnosis (please specify, do not include substance abuse): __________

Axis II DSM diagnosis (please specify): __________

Substance abuse diagnosis (please specify): __________

RECIDIVISM
Release Date (yy/mm/dd): __________

Date of first reconviction (yy/mm/dd): __________

Date of first new sex offense (charge or reconviction) (yy/mm/dd): __________

Recidivistic Offenses:
Total new charges for sexual offense: _____
Total new convictions for sexual offense: __________
Total new sexual offenses (charges + convictions) = __________

Total new charges for non-sexual violent offense: __________
Total new convictions for non-sexual violent offense: __________
Total new non-sexual violent offenses (charges + convictions) = __________

Total new non-sexual convictions (non-sexual violent + non-sexual non-violent) = __________

Sentence length for first new sex offense (years, months, days): __________
Aggregate sentence length for new sex offenses (years, months, days): __________
APPENDIX F

Variable Correlations with Sexual Recidivism: Construction Sample (N = 152)

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<thead>
<tr>
<th>Variable</th>
<th>Any Sexual Charge/Conviction</th>
<th>Any Sexual Conviction</th>
<th>Total Sexual Offenses</th>
<th>Total Sexual Convictions</th>
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<td>.04</td>
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<td>-.03</td>
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<td>.13</td>
<td>.16*</td>
<td>.14</td>
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<td>.15</td>
<td>.05</td>
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<td>.36**</td>
<td>.37**</td>
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<td>.28**</td>
<td>.46**</td>
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<td>-.17*</td>
<td>-.15</td>
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Note: * p < .05, ** p < .01
APPENDIX F continued

Variable Correlations with Sexual Recidivism: Validation Sample \((N = 169)\)

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<td>-.17*</td>
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Note: * \( p < .05 \), ** \( p < .01 \)
APPENDIX G

Violence Risk Scale: Sexual Offender Version (VRS:SO) Static Factors

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<td>2</td>
<td>25 to 34.99 years</td>
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<tr>
<td></td>
<td>1</td>
<td>35 to 44.99 years</td>
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<tr>
<td></td>
<td>0</td>
<td>45 years +</td>
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<td>S2 Age at First Sexual Offense</td>
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<td>Under 20 years</td>
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<td>2</td>
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<td>1</td>
<td>25 to 34.99 years</td>
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<td>0</td>
<td>35 years +</td>
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<td>S3 Sex Offender Type</td>
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<td>Mixed (both adult and child victims)</td>
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<td></td>
<td>2</td>
<td>Child molester (child victims only)</td>
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<tr>
<td></td>
<td>1</td>
<td>Rapist (adult victims only)</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Incest (related victims predominantly)</td>
</tr>
<tr>
<td>S4 Prior Sexual Offenses</td>
<td>3</td>
<td>4+ prior arrests/charges/convictions for a sexual offense</td>
</tr>
<tr>
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<td>2</td>
<td>2-3 prior arrests/charges/convictions for a sexual offense</td>
</tr>
<tr>
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<td>1</td>
<td>1 prior arrest/charge/conviction for a sexual offense</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>No prior arrests/charges/convictions for a sexual offense</td>
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<tr>
<td>S5 Unrelated Victims</td>
<td>3</td>
<td>4+ unrelated victims</td>
</tr>
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<td>2</td>
<td>2-3 unrelated victims</td>
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<td></td>
<td>1</td>
<td>1 unrelated victim</td>
</tr>
<tr>
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<td>0</td>
<td>No unrelated victims (related victims only)</td>
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<tr>
<td>S6 Total Victims (male or female)</td>
<td>3</td>
<td>4+ victims</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2-3 victims</td>
</tr>
<tr>
<td></td>
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<td>1 victim</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0 victims</td>
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<td>S7 Prior Sentencing Dates</td>
<td>3</td>
<td>11+ prior sentencing occasions</td>
</tr>
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<td>2</td>
<td>5-10 prior sentencing occasions</td>
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<td>1</td>
<td>2-4 prior sentencing occasions</td>
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<td>0</td>
<td>0-1 prior sentencing occasions</td>
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<tr>
<td>S8 Marital Status</td>
<td>3</td>
<td>Never married or equivalent</td>
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<td>2</td>
<td>Short-term common-law relationship(s) only</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Divorced/separated</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Currently married/common-law</td>
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APPENDIX H

Item Analyses for the New VRS:SO Static Factors \((N = 321)\)

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<th>Item-total Correlation</th>
<th>Alpha if Item Deleted</th>
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<td>.55</td>
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<td>1.61 (1.03)</td>
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<td>.56</td>
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<td>S3 Sex Offender Type</td>
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<td>.61</td>
</tr>
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<td>S4 Prior Sex Offenses</td>
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</tr>
<tr>
<td>S5 Unrelated Victims</td>
<td>1.65 (.98)</td>
<td>.56</td>
<td>.57</td>
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<tr>
<td>S6 Total Victims</td>
<td>1.78 (.85)</td>
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<td>.66</td>
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<tr>
<td>S7 Prior Sentencing Dates</td>
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<td>.68</td>
</tr>
</tbody>
</table>

Total Scale Alpha = .67
APPENDIX I

Introduction

The Violence Risk Scale: Sexual Offender Version (VRS:SO) is designed to fill a number of needs that exist in the criminal justice system. There is no generic risk assessment instrument that can be used under all conditions. The VRS:SO was specifically developed to assess the risk of sexual recidivism for forensic clients. It is particularly useful for assessing the risk of sexual recidivism for those who are being considered for release from incarceration to the community on various forms of conditional release or at the expiry of the warrant of committal.

A person's risk for sexual recidivism can change, for example, after participation in effective treatment programs. A tool that assesses the risk of sexual recidivism must therefore be sensitive to changes in risk. The VRS:SO is developed based on the conception that to provide a comprehensive evaluation of an individual's risk for sexual recidivism and changes in risk, in particular, during treatment, it is necessary to assess both Static (historical) and Dynamic (changeable) factors.

VRS:SO Static and Dynamic Factors

Static risk factors are important predictors of recidivism, but remain unchanged regardless of treatment interventions. The ten Static Factors (S1 to S10) are measures of past sexual behavior or conditions (e.g. prior sex convictions, prior sentencing dates, etc.) that are related to the risk of sexual recidivism. Rating instructions are given for each static factor. With the exception of S9 and S10, static factors cannot change to reflect a reduction in the risk of sexual offending. Should the individual age significantly during his/her institutionalisation, or incur additional sexual convictions, the relevant static factors should be re-rated where applicable.

Dynamic factors are also important risk predictors (Gendreau, 1996). Unlike static factors, dynamic factors are changeable and can reflect changes in risk after treatment. The 18 Dynamic Factors (D1 to D18) measure lifestyle, various pro- and antisocial attitudes and behaviors, personality characteristics, and treatment compliance, all of which have been empirically or theoretically linked to sexual recidivism. With treatment or other interventions, the Dynamic Factors can change over time.

The VRS:SO uses 10 Static and 18 Dynamic risk factors derived from an extensive review of the risk assessment and treatment literature to identify factors that are empirically or theoretically linked to sexual recidivism. The static and dynamic factors are rated on a 4-point scale to reflect the extent of the problems identified by the factors. When combined, the total Static and Dynamic Factor score represents the individual's current or pre-treatment risk. Dynamic factors that receive high ratings (e.g. 2 or 3) are potential treatment targets.
Assessing Treatment Change Using the VRS:SO

The Stages of Change Model (Prochaska & DiClemente, 1986; Prochaska, DeClemente & Norcross, 1992) or Transtheoretical Model of Change (TM) provides a useful heuristic towards understanding the change process in forensic clients and has been incorporated in the VRS:SO to conceptualize and measure treatment changes. The VRS:SO uses the TM to measure quantitatively behavioral, attitudinal, and affective changes as the result of treatment. Improvement indicated by progression through the stages of change is reflected in the individual's lower post-treatment risk rating.

The TM has been validated through studies of treatment-facilitated or client-mediated (self-help) modification of addictive and other problem behaviors, including, alcohol abuse, cigarette smoking, obesity, and domestic violence (Prochaska et al., 1992). The model postulates that individuals who modify their problem behaviors move through a series of stages: the precontemplation, contemplation, preparation, action and maintenance stages. This model is termed the Transtheoretical Model of Change because the stages of change appear to be the same regardless of the underlying theoretical assumptions of the treatment approach.

The stages of change correspond to the improvement that the client demonstrates. Each stage is characterized by specific client behaviors. Before being successfully treated, the person may cycle through most or all of the stages a number of times. Relapse or cycling through the stages is considered to be a rule rather than an exception (Prochaska et al., 1992). As the individual progresses through the different stages of change, treatment gains become more consistent and stable and the risk of violence should be reduced accordingly. The TM is used in the VRS:SO to measure treatment changes using the following descriptions of the stages of change:

- In the precontemplation stage, the individual has no awareness of the problems and evidences no intention to change in the near future. Many individuals in this stage are unaware or in complete denial of their problems. They deny or attribute the problem to external causes (e.g., "I don't have an anger problem" or "the only reason I'm in jail is because the system is rotten to the core and I never get a fair shake").

- Individuals in the contemplation stage are aware that a problem exists and are seriously thinking about overcoming it but no relevant behavioral change is evident.

- The preparation stage is distinguished from the contemplation stage by the presence of observable indications of change related to the individual's problem areas. The individual recognizes the problem area(s) and behavioral improvements are evident; however, the changes tend not to be consistent over time or situations and lapses are quite frequent.

- During the action stage, individuals actively modify their behavior, attitudes, and/or their environment in order to overcome their problems. The most overt behavioral changes are observed during this stage, when the client expends much time, energy, and are committed to effect these changes. Professionals often equate the action stage with change itself, without realizing that it is built on the foundation of the previous three stages. Relevant behavioral changes observed in the action stage have been consistent.
and stable over a significant period of time but usually have not been generalized to a
variety of high risk situations.

- The last stage is the maintenance stage in which relapse prevention techniques are used
routinely to prevent relapse and to consolidate and strengthen the gains made in the
action stage. In addition to the stability of the changes over time, the maintenance stage
is further characterized by the generalization of changes to a variety of high risk
situations that are relevant to the individual's offending behaviour(s).

Progression from one stage to the next stage would indicate that the individual has improved
and, as such, the risk should be lowered. The lowering in risk is reflected by a corresponding
decrease in the risk rating of .5 for each stage the individual has progressed. For example, by
moving from the preparation to the maintenance stage, a progression of 2 stages, the risk
rating would decrease by 1 (i.e. 2 x .5). The progression through the stages therefore is
translated into a quantitative decrease in risk.

Differences between the preparation, action and maintenance stages
Raters sometimes have difficulties distinguishing between the above 3 stages. Clients in all 3
stages show behavioral changes that are relevant to their identified treatment targets. The
differences are reflected primarily along 3 dimensions: the extent of the behavioral change,
(that is, the comprehensiveness of the behavior used to maintain positive changes), the
stability of change over time and the stability of change across a variety of situations
(generalization) that represent challenges to the individual.

General characteristics that correspond with the three stages are as follows:

Preparation stage: the extent, stability, and generalization of the changes are quite
limited. Lapses are quite frequent, and changes are often restricted to specific
situations. For example, the changes may be quite recent relative to lifetime
functioning or are evidenced only under specific circumstances (e.g. during a group
session) and/or when interacting with specific individuals.

Action stage: the extent and stability of the changes are substantial. However, the
individual has not been tested in key high risk situations that were problematic in the
past. For example, an individual who had past relationship problems, did well in
treatment but since then has not yet had to cope with the challenges of a relationship.

Maintenance stage: the extent, stability, and generalization of the changes are
substantial. Changes have been tested in high risk situations that were problematic in
the past.

Instructions for VRS:SO Rating

General principles in rating the static and dynamic factors

- Ratings are based on the individual's lifetime functioning including time spent in the
community and/or in an institution up to the current assessment. Generally speaking, more
recent functioning provides a better estimate of current functioning. However, incarceration
may artificially inhibit high-risk behaviors (e.g. substance abuse or access to potential
victims) that are more evident in the community. The rater is encouraged to utilize proxy
behaviors during incarceration as indicators of the individual's current functioning. Any
changes that the individual has made (with or without the benefit of treatment programs) should be included in the current assessment.

Rating static factors
- The ratings of the static factors are straightforward and are completed in accordance with the descriptions provided.
- With the exception of S9 and S10, Static Factors cannot change to reflect a reduction in the risk of sexual violence. Should the individual age significantly during institutionalization, the relevant Static Factors should be re-rated where applicable.

Rating dynamic factors
- The "Objective" section of each Dynamic Factor gives an overall description of the construct the Dynamic Factor is designed to capture, and should be read in conjunction with the rating descriptions.
- Each Dynamic Factor is rated 0, 1, 2, or 3. The higher the rating, the more the factor is associated with sexual violence in the individual's lifetime functioning. A 0-rating indicates that the factor in question has no relationship with sexual violence, and 3-rating indicates that there is a consistent and significant relationship with sexual violence. The prototypical characteristics for the ratings of 0 and 3 are described in considerable detail for each dynamic risk factor to allow the rater to establish anchor points at the two ends of the scale. Raters should consider 1 as less positive, as the case may be, than 0, and 2 as less serious or negative than 3. Exceptions to this general rule are indicated in the rating instructions for the factor. The descriptions for 0 and 3 for each of the dynamic variables are prototypical characteristics, or illustrations that the rater should use to gain an understanding of the underlying construct to be rated. However, the descriptions provided should not be considered as definitive or all inclusive. For example, a rating of 3 could be given as long as the individual's characteristics closely match the intent of the construct described.

Rating Stages of Change
- Identifying treatment targets
  If the individual is expected to participate in treatment, identify potential treatment targets by noting the Dynamic Factors rated 1, 2 or 3. Dynamic factors rated 2 or 3 are clearly problem areas and should be considered for treatment. Dynamic factors rated as 1 may represent lower risk areas or high-risk areas that have been impacted by treatment and require ongoing lower intensity treatment or monitoring. Dynamic Factors rated as 0 are areas clearly unrelated to the client's risk and therefore, do not require treatment (e.g., substance abuse treatment for an individual who does not use substances). In the latter, it is not necessary to rate the stage of change pre-treatment as treatment is not warranted and no change is expected. In such cases, the rater can omit the Stage of Change rating.
- **Pre-treatment ratings**
  For all identified treatment targets, rate the pre-treatment Stage of Change according to the Stages of Change rating instructions by putting a circle (O) around the appropriate stage on the score sheet.

- **Post-treatment ratings**
  At the end of treatment, rate the post-treatment Stage of Change for all identified treatment targets according to the Stages of Change Rating Instructions by putting a cross (X) on the appropriate stage on the score sheet.

**Computing reduction in risk at the end of treatment**
- Determine the number of stages through which the individual has progressed since the commencement of treatment, that is, the number of stages between 'O' and 'X'. A change score of .5 corresponds to progression from one stage to the next one. For example, a progression from the Preparation Stage pre-treatment to Maintenance Stage post-treatment (i.e., the progression of two stages) would warrant a change score of 1 (.5 x 2). Change scores of 0, .5, 1.0, and 1.5 represent progression through 0, 1, 2, and 3 stages respectively.

*Note: The progression from the PreContemplation Stage to the Contemplation Stage does not warrant a reduction in risk because of the absence of behavioral change. However, it is useful to record this progress for those involved in treatment delivery because different interventions should be used for those in the PreContemplation and the Contemplation stages. As indicated on the score sheet, regression at the end of treatment should be reflected by adding a change score of .5 for each stage that the individual regressed (with the exception of regression from the Contemplation to PreContemplation stage).*

**Guarding against rating biases**
- To avoid biased ratings, the rater is encouraged to read and review the objective and rating descriptions each time a rating is done. This will ensure that the rating adequately reflects the extent to which the individual's characteristics match the descriptions provided in the manual, rather than based on the rater's memory which may be influenced by previous ratings. As well, when the rater is uncertain about what rating to give (e.g., 2 or 3), the rater is encouraged to alternate their ratings such that sometimes the uncertainty results in the higher rating and sometimes in the lower rating.

**Guarding against cultural biases**
- When rating clients from minority cultures, the rater should be sensitive to the fact that the standardized rating instructions may have to be modified to accommodate culture-specific behaviors. For example, open and frank discussions of the cohort's criminal behaviors in therapy groups are considered inappropriate in some cultures. As such, the reluctance to self-disclose or to give feedback to others should not necessarily be considered as noncompliance with treatment. If in doubt, raters should consult knowledgeable colleagues concerning cross-cultural distinctions before rating.
Clinical Override
A Clinical Override is also included in the manual to allow the rater to make special judgments of risk of sexual violence, independent of, or in conjunction with the results of the ratings. The override is designed to address extraordinary or unique situations not covered by the VRS:SO factors. For example, a specific threat of sexual violence made toward an identified individual may be considered serious enough to override even a composite assessment of low risk using the VRS:SO.

Factors that cannot be rated for various reasons
- If a lack of information prevents the rater from scoring a particular factor, it should be omitted. Also, a factor may be omitted if it is not logically applicable to a case. If a factor is omitted, the rater should indicate on the score sheet that there is insufficient information to rate (I), or that the factor is not applicable (N). The corresponding stage of change is also omitted for each factor not rated.
- Should missing information necessary to rate the risk factor become available shortly after the pre-treatment assessment, the information can then be used to rate the omitted factor(s) and stage of change to complete the pre-treatment assessment. Should missing information become available later in the course of treatment, the omitted risk factor can be rated at the end of treatment. All the information made available during treatment should be taken into account to complete the post-treatment rating.
- An additional calculation is required to give a Prorated Total Score when factors are omitted in the rating. The Total Score must be prorated to take into account the omitted items. The formula for such a calculation is as follows:

$$\text{Prorated Total Score} = \frac{\text{Total Score} \times 16}{(16 \text{ minus number of omitted factors})}$$

Obtaining Information for Rating
Static and Dynamic Factors
To prevent the potential of introducing systematic biases to the data, the rater should rate the factors and complete the risk assessment after reviewing different sources of information. Biases may be introduced when the assessment is based on a limited source of information (for example, the self-report of the client). Ideally, the different sources of information should converge, pointing to the same conclusion, and as much as possible, the rater should rate each factor based on converging information. This increases the reliability and validity of the results. In cases where there is significant conflicting information, further investigation is necessary.
Sources of Information

Case Files
Information in case files should be used extensively when available. Information may be available from case reports, psychiatric or psychological reports, presentence reports, court reports, judges’ comments, previous treatment reports, parole reports, police reports, juvenile records and other criminal justice agency reports. If a past report or record is considered to be important and is not available, it should be obtained before an assessment commences. If the report cannot be located after repeated attempts, it should indicated in the body of the assessment. The rater may decide that in the absence of such a report, scoring the factor accurately is compromised significantly and therefore may elect to omit the item due to insufficient information. Other omitted items may relate to the non-applicability of the item for a particular individual (See section “Factors that cannot be rated for various reasons”).

Institutional Misconduct
Reviewing the institutional misconduct file or other similar documentation is strongly recommended, especially for those with a history of institutional violence or management problems.

Interview
The individual should be interviewed prior to completing the ratings. The information obtained in the interview can be used to clarify ambiguous file information and will provide an important additional source of information. The semistructured interview in this Manual can be used as a guide to conduct the pre- and post-treatment interviews. The section on treatment readiness and responsivity is especially relevant for stage of change ratings.

Information of Community vs. Institutional Behavior
The rater should take into account, when relevant, the individual’s behaviors in the community and within institutions to complete a rating. When rating an individual, who has been institutionalized continuously for a significant portion of his or her adult life, more emphasis should be placed on his or her institutional behaviors and treatment progress. In contrast, when rating an individual who has experienced only short and/or repeated periods of institutionalization, more emphasis should be placed on community behaviors unless significant events occur in the institutions.

Institutions are artificial environments however and, as such, institutional behaviors may not always be representative or predictive of community behaviors. This is particularly significant for individuals whose victims are not accessible in the institutions, for example, pedophiles. In this case, the individual obviously does not have the opportunity to continue to abuse his or her victims. However, the deviant behavior may still be evident and may simply be manifested in a different form, such as fantasies or sexual advances toward others. In evaluating change in behaviors, it is important to consider the corresponding institutional behaviors that are analogous to the target behaviors that the individual has demonstrated in the community.
Other Collateral Information

In many situations, information obtained from family members and significant others is helpful in rating the factors. It cannot be overemphasized that the rater should not hesitate to go beyond what is suggested here in the gathering of information. No valid assessment can be made without a valid and comprehensive information base.