THE VALIDITY AND RELIABILITY OF THE

VIOLENCE RISK SCALE-YOUTH VERSION (VRS-YV)

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Abstract

The present study examines the validity, reliability, and psychometric properties of a newly developed violence risk assessment and treatment planning measure for youth – the Violence Risk Scale-Youth Version (VRS-YV; Lewis, Wong, & Gordon, 2004). Composed of 4 static and 19 dynamic items, the VRS-YV is designed to assess violence risk, identify targets for treatment, and evaluate changes in risk as a function of treatment. Change is evaluated through a modified application of Prochaska et al.'s (1992) Transtheoretical Model of Change. Stages of change ratings made pre- and post-treatment are summed across dynamic items to yield change scores.

The VRS-YV, Youth Level of Services/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2003), and Psychopathy Checklist-Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003) were each rated from file information on a sample of 133 young offenders (68 males and 65 females) who had received assessment and/or treatment services from a community mental health facility in Saskatoon, Saskatchewan. All youths had been charged or convicted of a violent offense. This tended to be a rather high risk sample with a large proportion of Aboriginal youths.

The VRS-YV demonstrated good internal consistency (VRS-YV total $\alpha = .91$) and interrater reliability (VRS-YV total $ICC = .90$), while most of the individual items had acceptable inter-item (mean $r = .32$) and item total correlations (range $r = .30$ to .70). Male and female youths displayed few differences on the three risk measures or their respective scale components; however, Aboriginal youths scored significantly higher on these measures than non-Aboriginal youths, with the trend being particularly strong among males.

The VRS-YV showed good convergence with the YLS/CMI and PCL-YV. The three measures significantly postdicted violent offending, that is, youth who were repeat violent offenders tended to score significantly higher on each of the measures, than first time violent youth (i.e., those who had no previous history of violence). Similar postdiction was observed for general criminal offending.

Recidivism data were available for roughly half of the total sample ($n = 62$) over a mean follow-up time of approximately 2 years. Preliminary evidence was obtained for the predictive accuracy of the VRS-YV with respect to violent and general recidivism. Predictive accuracy statistics were comparable to those obtained for the YLS/CMI and PCL-YV, with correlations generally being in the .40 to .50 range and Areas Under the Curve (AUCs) in the mid .70s to low .80s. There was also a significant relationship between VRS-YV risk level and both violent and general recidivism. Survival analyses further confirmed that the VRS-YV was able to differentiate those who were more likely to recidivate and more likely to do so more quickly.

Change ratings were available for a small subsample of youth ($n = 39$), which were used to compute post-treatment dynamic ratings. Youths appeared to demonstrate some degree of change, indicating possible therapeutic progress after receiving treatment services. While the trends for the change results tended to be in the expected direction across several of the analyses, the small nature of the sample precluded meaningful interpretation of these findings.

In sum, these data provide preliminary evidence for the ability of the VRS-YV to evaluate risk and predict violent and general recidivism with comparable accuracy to that of two well-known and psychometrically robust instruments in the field. The results further

demonstrate that the VRS-YV, YLS/CMI, and PCL-YV can have predictive validity for future violent and general recidivism among a diverse sample of youth that includes both male and female, Aboriginal, and community-based youth, living in the province of Saskatchewan. Limitations and future directions are discussed.

Last, but the absolute farthest from least, I would like to thank my partner in crime, for helping me through the "7 years of broccoli." (Now do we get to eat cake?) From Saskatoon to Winnipeg and back (x2) and all the stops along the way (your idea not mine!), your unconditional love and support provided the fuel for the journey. Words simply cannot express the fullest extent of my gratitude to you.

Finally, I would like to dedicate my dissertation to those who had hoped to see this day, but are no longer with us, especially Pop and Grammie who encouraged me to "Keep on truck'n", and my Grandpa who appreciated the value of higher education and was one of my biggest supporters in this, and all, my life endeavors.

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INTRODUCTION

1.1 General Introduction

Violence is a hugely complex phenomenon. There are many possible ways to define violence, depending on who is defining it and for what purpose, and measuring violent behavior and the myriad of associated consequences and costs poses many challenges (World Health Organization, 2002). However, the global knowledge base and level of awareness appears to be growing. Violence was declared a leading worldwide public health problem in a resolution adopted by the World Health Assembly (WHA) in Geneva in 1996 (Resolution WHA49.25) and the first comprehensive review of violence on a global scale - the *World report on violence and health* - was conducted by the World Health Organization (WHO) in 2002. A primary conclusion of the *World report* was as follows: "*Violence is not inevitable. We can do much to address it and prevent it. The world has not yet fully measured the size of this task and does not yet have all the tools to carry it out.*" (p. 36). It is hoped that the current body of research will contribute to this growing knowledge base and assist public health practitioners in preventing violence by further contributing to the current array of tools used to tackle one of the most visible forms of violence – violence by young people (WHO, 2002), and more specifically, youth violent crime.

According to the *World report*, violence among young people left an estimated 199 000 youths dead in 2000. Moreover, for every young person killed as a result of violence perpetuated by youth, an estimated 20-40 receive injuries requiring hospital treatment, and many more suffer from a range of physical, sexual, reproductive, and mental health problems (WHO, 2002). Violence among youth also exacts substantial social (e.g., lost productivity due to premature death, injury, absenteeism, and long-term disability) and financial costs

(e.g., medical care, incarceration). Indeed, in one of the most comprehensive analyses of its kind, Cohen (1998) estimated that a high risk youth (i.e., career criminal, heavy drug user, high school dropout) may generate social costs (including monetary and non-monetary losses) approaching 2 million US dollars.

Specific rates and costs of violence by young people vary according to region, country, and community. To place Canada's crime rates in perspective, comparisons are often drawn to other industrialized countries, and most frequently our neighbor, and largest trading partner, the United States. Police-reported crime data consistently show that the United States has much higher rates of violent crimes (Statistics Canada, 2006a). Generally speaking, the violent crime rate in Canada has been falling since the mid-1990s. However, the overall decrease appears driven by declines in the most frequent violent offense, common assault, while corresponding, albeit small, increases have been reported in the most serious lower volume crimes, such as homicide, attempted murder, assault with a weapon, aggravated assault, and robbery (Statistics Canada, 2006a).

The youth crime rate for the aforementioned serious violent offenses has shown even larger increases in recent years (e.g., homicide (+47%), attempted murder (+11%), aggravated assault (+6%), and robbery (+9%), Statistics Canada, 2006a). In fact, the rate of youth accused of homicide in 2006 was the highest since 1961 - when data were first collected (Statistics Canada, 2007). Although these are relatively small numbers and as such, are prone to large annual fluctuations, it warrants mentioning that the overall youth violent crime rate increased by 3% during the same year – the first reported increase since the *Youth Criminal Justice Act* (*YCJA*) was introduced in 2003 - and has risen 12% over the last decade (Statistics Canada, 2008). (One of the key principles behind the *YCJA* is to divert youths who

have committed non-violent and minor crimes away from the formal criminal justice system (*YCJA*, 2002). For instance, *The Act* requires police officers to consider the use of extrajudicial measures before deciding to charge a young person.)

In general, crime rates for violent offenses tend to be twice as high among Canadian young people (aged 12 to 17) than for adults (Statistics Canada, 1999; 2002). For instance, in 2004, the number of youths charged proportionately outnumbered adults by a ratio of 1.7 to 1 for all violent crimes, 2 to 1 for sexual assaults, 1.5 to 1 for non-sexual assaults, and 4.2 to 1 for robbery (Statistics Canada, 2005). However, there are large differences in rates from one region of the country to another. In recent years, Saskatchewan has reported the highest rates (e.g., 1 983 per 100 000 population in 2005) and smallest changes (e.g., a -0.6% change in rate from the year before). In fact, in 2005, the youth violent crime rate in Saskatchewan was nearly double the second highest rate (i.e., 9 758 per 100 000 population recorded by Manitoba). Thus, it is important that the prevention of future violence among youth is a priority for researchers and clinicians across Canada, including public health authorities in Saskatchewan.

Before continuing, it is important to recognize that overall rates also conceal differences between certain populations, communities, and racial and ethnic groups. In Saskatchewan, Aboriginal youth are over-represented as victims and perpetrators of violent crime at each stage of the Canadian criminal justice system (Statistics Canada, 2006b). For instance, the percentage of Aboriginal youth to total youth admitted to open custody, secure custody, and probation in Saskatchewan in 2003-2004 was 83.5%, 74.8%, and 65.0% respectively (Statistics Canada, 2006b). Furthermore, in a recently conducted "one day snap-shot" of Aboriginal youth in custody across Canada (Latimer & Foss, 2004), Saskatchewan

reported the largest difference between the incarceration rates of Aboriginal and non-Aboriginal youth. Specifically, Aboriginal youth were 30 times more likely to be incarcerated compared to non-Aboriginal youth, and for some of the most serious offenses (e.g., homicide, attempted homicide, and "serious assault"). Finally, although recent juvenile justice statistics would suggest that girls are entering the criminal justice system more frequently than ever before and for more serious offenses (e.g., Savoie, 2000), the proportional representation of Aboriginal people among female youth admitted to correctional services has also been greater than that for males (Statistics Canada, 2006b).

While Aboriginal overrepresentation is likely related to a series of interactive factors including, individual life experiences and social and economic inequalities (e.g., poverty, discrimination; Latimer & Foss, 2005), some of these factors may be serving to elevate the risk of criminal behavior, including acts of violence, among Aboriginal youth in the province of Saskatchewan. Identifying and measuring these factors, particularly as they apply to vulnerable and at-risk populations, is an important first step in addressing underlying causes of violence for individuals, families, and communities in this province, as well as societies worldwide. The current research endeavors to facilitate further understanding of such vulnerable persons and highlight their particular needs.

In sum, violence among youth is a significant public health problem in the province of Saskatchewan, Canada, and worldwide. Sustained efforts by relevant authorities, such as those responsible for health, criminal justice, and social policy, at the national, provincial, and municipal levels, are needed to prevent and reduce violent offending behavior among youth in Canada and the province of Saskatchewan.

Current provincial efforts include a wide range of legislative and judicial remedies (e.g., alternative measures programs - referred to as Extrajudicial Sanctions in the *YCJA*), community-based activities (e.g., policing initiatives such as the Serious and Habitual Offender Comprehensive Action Plan; SHOCAP), and programs (e.g., the High Risk Violent Offender Initiative; HRVYOI). However, the majority of programs are aimed at those who have already demonstrated violent behavior (i.e., indicated interventions) and priority is usually given to dealing with individual youth who admit to, or are found guilty of, a violent offence (i.e., tertiary prevention). Service provision for such youth typically involves a broad-based assessment (usually completed by the community youth worker) that assesses a youth's level of risk to re-offend, identifies the areas that need to be addressed in order to decrease that level of risk, and assists with case management (Saskatchewan Corrections and Public Safety, 2005). "Secondary assessments" are frequently requested to further examine a youth's risk for violent reoffending and assist with case planning. When faced with such requests, clinicians currently have few specialized instruments or tools to choose from to inform their recommendations. As such, little is available to assist the practitioner working with violent youth in identifying violence-specific treatment targets and appropriate therapeutic approaches, or evaluating treatment progress and its relationship to risk.

The primary objective of the current study was to further develop effective clinical assessment and treatment of violent youth, and ultimately assist in reducing violent victimization, by evaluating the validity and reliability of a preliminary version of a newly developed risk assessment tool - the Violence Risk Scale-Youth Version (VRS-YV; Lewis, Wong, & Gordon, 2004) - designed specifically to assess violence risk and guide violence reduction treatment for criminally involved youth. The VRS-YV also has the potential to

capture therapeutic change, and to link improvements (or lack thereof) to changes in violence risk. Similar tools are already in use with adults (i.e., Violence Risk Scale (VRS); Wong & Gordon, 1998-2003) and sex offenders (i.e., Violence Risk Scale-Sexual Offender version (VRS-SO) Wong et al., 2004-2006), and research to date has generated some promising findings and clinical applications (e.g., Wong & Gordon, 2006; Olver & Wong, 2006; Wong, Gordon, & Gu, 2007, Olver et al., 2007). However, there has been no such research conducted on the youth adaptation of this potentially promising family of tools - the VRS-YV.

Although it could be argued that such research merely stands to increase the recent proliferation of forensic risk assessment instruments, begging the question: Do we really need yet another risk assessment tool? As previous researchers have pointed out (e.g., Wong & Gordon, 2006; Olver et al., 2007), the development and validation of specialized tools (and corresponding programs) for special need populations could help to fill an important need in offender assessment and treatment. For instance, the VRS was designed to assist treatment providers who work with high risk, high need, nonsexual violent offenders to integrate risk assessment and treatment (Wong, Gordon, & Gu, 2007). Specifically, the authors of the VRS (Wong & Gordon, 2006) have proposed that the results of the VRS assessment can inform service providers "who to treat (i.e., identify appropriate high-risk/-need treatment candidates), what to treat (i.e., identify dynamic or changeable variables linked to violence as treatment targets), and how to treat (i.e., identify appropriate therapeutic approaches using a modified stages-of-change model)" (p. 281).

The VRS family of tools are also designed to assess therapeutic change (changes made by the offender over the course of treatment), quantify corresponding changes in risk,

and link the amount of change as quantified by the tool to recidivism (Wong & Gordon, 2006, Olver et al., 2007). By incorporating a well-articulated stages of change model (Transtheoretical Model of Change; Prochask et al., 1992), it is further thought that these tools may have important advantages over measuring change by simply re-rating the dynamic items at post-treatment (e.g., capturing offense-linked proxy behaviors that are relevant to treatment and are observable in forensic and/or treatment settings; Olver et al., 2007).

The small, but growing, body of research on the VRS family of tools, and the VRS-YV in particular, will be further discussed and referenced at various points throughout the *Introduction* in order to set the stage for the current investigation. The assessment and treatment of violence in general, is also further reviewed below. Specifically, the following literature review begins with the practice of risk assessment and moves to a discussion of treatment approaches for violence, before introducing the current study in greater detail.

1.1 Introduction to Risk Assessment and the Prediction of Recidivism

The assessment of risk and the prediction of recidivism (i.e., re-offending) was once a fledgling enterprise (Webster et al., 1997). Clinicians relied largely on unstructured, intuitive approaches that produced little improvement beyond chance alone. The field has been further complicated by pitfalls and shortcomings endemic to evaluating risk. For the most part, recidivistic violence is a statistically infrequent event, follow-up times vary (and there is some disagreement as to what an adequate length of follow-up may be), and there are issues concerning the definition of recidivism and the most appropriate source of recidivism data. However, in recent years, there has been a burgeoning array of promising instruments for evaluating risk based on a tradition of empirical research, including those developed specifically for use with youths. Since the majority of these measures tend to be

developmental downward extensions of their adult counterparts, the adult literature will be briefly reviewed, followed by a more in depth review of young offender measures.

1.2 Risk Assessment with Adult Offenders:

A Review of Instruments and Assessment Practices

In a seminal chapter, Bonta (1996) conceptualizes risk assessment as having progressed through three generations. According to Bonta, the first generation of risk assessment corresponds to unstructured clinical judgment. In this approach, clinicians rely primarily on gut feelings or intuitive hunches in appraising an offender's risk for future violence or antisocial behavior. Information would be collected, integrated, weighed, and evaluated using purely subjective procedures. Perhaps not surprisingly, unstructured clinical judgment has proven inferior to more structured and empirically based approaches (Bonta, Law, & Hanson, 1998; Meehl, 1954; Grove & Meehl, 1996; Grove et al., 2000; Hanson & Bussiére, 1996; Mossman, 1994a).

The second generation approach entails the use of static, actuarial instruments. These measures are developed through empirical procedures in which items are selected and statistically weighted based on the magnitude of their relationship to the criterion (i.e., violence). Second generation, actuarial instruments are comprised of mostly static risk factors, tend to be devoid of relevant theory, and may contain a small number and occasionally unusual combination of items (Hart, 1998). Examples of second generation instruments include the Statistical Information on Recidivism (SIR; Nuffield, 1982) scale and the Violence Risk Appraisal Guide (VRAG; Harris et al., 1993). Such tools can do little more than suggest desirable levels of external control (e.g., level of supervision). They provide

little information about the client's problem areas, current functioning, treatment potential, and so on.

The third generation refers to risk-need instruments, also actuarial in nature. These measures are comprised of both static and dynamic factors (also known as criminogenic needs, which have the capacity to change) and, as such, are capable of assessing changes in risk through treatment or experience. Risk-need measures often are developed according to a guiding theory (e.g., Psychology of Criminal Conduct, Andrews & Bonta; 1994; 1998; 2003) and have a comprehensive and diverse range of relevant risk items. Some risk-need measures tend to be quite general and are designed to predict a broad range of criminal outcomes (i.e., general recidivism), an excellent example of which is the Level of Services Inventory-Revised (LSI-R; Andrews & Bonta, 1995). Other risk-need measures are violence-specific, developed specifically with the intention of predicting future violence and containing items with violence-specific content. An example would be the Historical Clinical Risk-20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997). Thus, third generation tools address many of the shortcomings of second generation tools.

At this point it warrants mentioning The Psychopathy Checklist-Revised (PCL-R), a 20-item symptom construct rating scale designed to assess psychopathy in adults. Although not originally developed as a risk measure, research has demonstrated the PCL-R to be a strong predictor of violent and general recidivism (Hemphill et al., 1998; Gendreau et al., 2002). In addition, while offenders with high levels of psychopathy on this measure arguably have the capacity to change (Wong & Hare, 2005), it is uncertain to what extent PCL-R scores can change and there is no mechanism in this tool for evaluating change. Thus, one potential disadvantage of current assessment instruments is that they tend to lack a coherent,

theoretical framework for assessing changes in risk as a function of treatment and/or experience.

An exhaustive review of the prediction literature for these measures is beyond the scope of the current review. The reader is directed toward several excellent reviews including, Hemphill et al. (1998), Gendreau et al. (2002), Andrews and Bonta (2003), and Andrews, Bonta, and Wormith (2006). However, the clinical-actuarial debate will be briefly considered.

In 1954, Paul Meehl of the University of Minnesota wrote a document in which he evaluated 20 studies involving human judgment and prediction of a variety of psychological phenomena (e.g., school and work performance, recovery from psychosis, future criminality). Twelve of the studies demonstrated a clear advantage for the use of data-driven (i.e., actuarial) procedures, while the remaining studies indicated a tie. In no study was clinical judgment found to be superior. A recent meta-analysis by Grove et al. (2000) of over 100 studies arrived at similar findings, with evidence for the clear superiority of actuarial procedures in nearly 50% of the studies examined. In offender research, several meta-analytic reviews attest to the superior predictive accuracy of structured, actuarial approaches (both second and third generation instruments) including general (Bonta et al., 1998), violent (Bonta et al., 1998; Mossman, 1994), and sexual recidivism (Hanson & Morton-Bourgon, 2004).

Recently, a fourth generation of assessment instruments was identified and defined as a system "that guides and follows service and supervision from intake to case closure" (Andrews, Bonta, & Wormith, 2006, p.8). The Offender Intake Assessment (OIA) process of the Correctional Service of Canada (Motiuk, 1997) and the Level of Service/Case

Management Inventory (LS/CMI; Andrews, Bonta, & Wormith, 2004) have been cited as examples (Andrews et al., 2006). A major goal of such systems is to strengthen adherence with principles of effective intervention (e.g., case classification, level of supervision, general service requirements) in order to enhance public safety (Andrews et al., 2006). However, it has been argued that these all encompassing offender service delivery and information management systems do not provide sufficient focus or guidance for specialized populations such as high risk-need violent offenders (Wong & Gordon, 2006). Moreover, in keeping with the principle of responsivity – that is, matching effective treatment strategies, such as behavioral, social learning, and cognitive-behavioral strategies (general responsivity) to the client's individual characteristics (specific responsivity) such as age, gender, ethnicity, motivation, learning style, and ability (Andrews, Bonta, & Hoge, 1990; Andrews, Bonta, & Wormith, 2006) – fourth generation tools should also be designed to serve different and specialized functions (Wong & Gordon, 2006).

For instance, as was mentioned earlier, the Violence Risk Scale (VRS; Wong & Gordon, 2004-2006) was developed to assist treatment providers working with high risk-need violent offenders in integrating the assessment of risk, need, responsivity, and treatment change (Wong & Gordon, 2006; Wong, Gordon, & Gu, 2007). Briefly, the VRS is comprised of 6 static (i.e., remain unchanged with treatment) and 20 dynamic variables (i.e., have the capacity to change with treatment) that are rated on a four-point scale (0, 1, 2, or 3). (See Table 1.1 for a complete listing of VRS items). Dynamic variables identified as treatment targets (rating of 2 or 3) are further rated using a scheme based on an adaptation of Prochaska et al.'s (1992) Transtheoretical Model of Change (i.e., Precontemplation, Contemplation, Preparation, Action, and Maintenance stages of change). Briefly, the model conceptualizes

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an individual's readiness for achievement and maintenance of change. Individuals can be rated pre- and post-treatment, and the amount of change the person has progressed (and hence reduction in risk) is noted for each dynamic risk item and can be translated into a quantitative risk reduction (i.e., 0.5 per stage). Thus, the VRS can potentially assess overall level of violence risk, identify treatment targets linked to violence (i.e., violence-specific criminogenic needs), capture the client's readiness for change (as well as other responsivity factors), and employs a systematic means of evaluating change in violence risk as a function of treatment or experience (Wong & Gordon, 2006; Wong, Gordon, & Gu, 2007).

The VRS has demonstrated good interrater reliability, for instance, with interclass correlation coefficients (ICCs) of .92 and .97 obtained on a subsample of 45 cases (Lewis, 2004) and a Pearson correlation of .87 on 60 cases from the same total sample (Gordon, 1998), as well as high internal consistency for VRS total scores (Cronbach's $\alpha = .93$), dynamic item total ($\alpha = .94$), and static item total ($\alpha = .69$) (Wong & Gordon, 2006). Moreover, in a sample of 918 male offenders serving custodial sentences in the prairie region (Wong & Gordon, 2006), VRS scores were correlated with violent ($r = .28-.40$, $M = .35$) and nonviolent ($r = .33-.39$, $M = .36$) recidivism over short- (1 year) and longer-term (4.4 years) follow-up. Similarly, receiver operating characteristics (ROC) analyses yielded area under the curve values (AUCs) consistently above chance level (between .71 and .75) for all types of recidivism. Survival analyses were also consistent with correlational and ROC analyses, providing further support that those with higher VRS ratings are more likely to recidivate, violently and nonviolently, than those with lower scores. Specifically, those that scored in the 55-60 range on the VRS were found to have a 55% likelihood of recidivating violently and 69% likelihood of recidivating generally, after a 3-year follow up. In comparison, those who

scored in the 35-40 range had a 25% and 49% likelihood of recidivating violently and generally, respectively.

Although investigations are currently underway to determine if the VRS dynamic variables are changeable as a function of violence reduction treatment and can be linked to reductions in violent recidivism, preliminary data supports the advancement in the stages of change as a function of treatment (Lewis, 2004) and a corresponding reduction in violent recidivism in high-risk, violence-prone, and difficult to manage offenders who participated in risk reduction focused correctional treatment programs (Wong et al., 2005, 2006; Di Placido et al., 2006). Promising results have also been obtained with a sex offender version of the VRS (see Wong, Olver, Nicholaichuk, & Gordon, 2004-2006; Olver, 2003; Olver & Wong, 2006; Olver, Wong, Nicholaichuk & Gordon, 2007).

A youth version of the VRS has also recently been developed to fill an important similar gap in young offender service provision. There are currently few measures that specifically address youth violence or assist practicing clinicians in linking assessment and treatment activities. Fewer identify violence-specific targets for treatment, and even fewer still have the potential to assess changes in risk as a function of treatment or experience. As such, a violence-specific, clinician and treatment friendly assessment tool, such as the Violence Risk Scale – Youth Version (Lewis, Wong, & Gordon, 2004) could potentially fulfill several important service needs - all in a single tool. Although seemingly promising, there has yet to be any research conducted on the VRS-YV and thus its validity and reliability is unknown. (The VRS-YV will be discussed in greater detail following a review of psychometric research on young offender measures.)

Table 1.1

VRS static and dynamic items

Static Items

S1   Current Age
S2   Age of First Violent Conviction
S3   Number of Juvenile Convictions
S4   Violence throughout Lifespan
S5   Prior Release Failures/Escapes
S6   Stability of Family Upbringing

Dynamic Items

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

1.3 Psychometric Research on Young Offender Measures

An increasing number of measures have been developed for assessing risk for violent and general recidivism in youth. These are generally youth-adapted versions of adult measures with modifications based on developmental considerations unique to the young offender population. Research on these measures has varied, and although some have voiced concerns that such measures have yet to demonstrate adequate validity, reliability, and clinical utility with young offenders (e.g., Hannah-Moffat & Maurutto, 2003), the body of research on standardized forensic assessment measures with youth has been growing steadily, and the existing findings suggest that they are capable of predicting young offender recidivism with a degree of accuracy that is equal to or greater than their adult counterparts (e.g., Schwalbe, 2007). The most popular and well-researched young offender measures are described below with a synopsis of recent data concerning their psychometric properties. An emphasis is placed on their predictive validity with respect to violent and general recidivism as this has been the focus of the majority of research. These include the Youth Level of Services/Case Management Inventory (YLS/CMI), Psychopathy Checklist-Youth Version (PCL-YV), Structured Assessment of Violence Risk in Youth (SAVRY), Massachusetts Youth Screening Instrument (MAYSI-2), and the Jesness Personality Inventory (Jesness).

1.3.1 *Youth Adapted Variations of the Level of Services Inventory*

Multiple variations of the Level of Service Inventory (LSI) and its revised version (LSI-R, Andrews & Bonta, 1995) have been developed for young offenders including the Young Offender: Levels of Service Inventory (YO:LSI; Shields, 1990) and more recently, the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2003; Hoge, Andrews, & Leschied, 2002). Both youth variations consist of clinician-rated

item checklists across several criminogenic need areas such as criminal history, family concerns, employment/education, attitudes, peers/companions, leisure/recreation, substance abuse, and antisocial lifestyle pattern.

Evaluative research with young offenders suggests that youth adapted versions of the LSI are suitable risk/need assessment instruments. For instance, Scott (1985) showed that the YLSI had acceptable psychometric properties and was positively associated with level of supervision and various measures of recidivism. An extension of this work with male young offenders by Simourd and colleagues (1994) yielded reliable and modest total subtotal correlations, subtotal intercorrelations, and internal consistency estimates and it was concluded that the psychometric properties of the YLSI were at acceptable levels.

Shields and Simourd (1991) further compared youth who had engaged in acts of institutional violence, termed "predatory youths", to non-predatory youths on a youth adapted version of the LSI. Predatory youth ($n = 28$) scored higher than non-predatory youth ($n = 223$) on several criminogenic indexes of the instrument, indicating higher risk, in the areas of criminal history, family concerns, substance abuse, leisure/recreation, employment/education, peers, attitudes, and psychological variables (e.g., past suicide attempts, antisocial attitudes, belligerent interpersonal behavior, lack of plans).

More recently, Ilacqua, Coulson, Lombardo, and Nutbrown (1999) examined the predictive accuracy of the YO-LSI in a sample of 82 male and 82 female young offenders. Youth were followed up one year post-assessment. Predictive accuracy was evaluated in the male and female samples separately by examining recidivism rates across different risk categories. For both males and females, there was an increase in the base rate of recidivism

with each successive increase in risk level (e.g., Low risk group, males 33%, females 50%; Very High risk group, males 100%, females 86%).

Moreover, Jung and Rawana (1999) investigated the predictive validity of a variation of the Youth Level of Service: Case Management Inventory (YLS/CMI) in a sample of 250 male and female young offenders followed up for 6 months post assessment. Recidivists scored significantly higher than non-recidivists on total YLS score (15.7 vs. 9.2 respectively) and all eight criminogenic needs (See Appendix D for a listing of YLS/CMI items and needs). In addition, Aboriginal youth scored significantly higher than non-Aboriginal youth on family circumstances/parenting, substance abuse, peer relations, and leisure/recreation. Consistent with Ilacqua and colleagues (1999), no significant differences were observed between males and females on YLS total score or any of the criminogenic needs. Costigan and Rawana (1999) followed the same sample of juvenile offenders during a 2-year period and further substantiated sound predictive validity, although interrater reliability was not assessed and only a single outcome measure was employed.

To address aforementioned limitations, Schmidt, Hoge, and Gomes (2005) examined the YLS/CMI's reliability and validity in a sample of 107 male (62.6%) and female (37.4%) offenders (29% Aboriginal; 71% Caucasian) who were court referred for mental health assessments in Northern Ontario. Interrater reliability estimates (intraclass correlations, $n = 29$) ranged from .61 (Peer relations) to .85 (Education/employment) and all were statistically significant. Internal consistency estimates (Cronbach's α, $N = 107$) ranged from .56 (Substance abuse) to .77 (Attitudes/orientation). Taken together, these results suggest that the YLS/CMI is a reliable instrument that can provide a consistent risk-need profile however, the Peer relations and Substance abuse subscales were marginally below established benchmark

cutoffs. Importantly, total scores on the YLS/CMI were significantly correlated ($p < .01$) with other well-established behavioral measures of pathology (concurrent validity) and a number of outcome measures (predictive validity) including number of new offenses ($r = .30$), time to reoffend ($r = -.42$), and serious reoffending (SR; $r = .26$) for the entire sample. However, correlations with any reoffending (AR) and number of new offenses were nonsignificant for the female sample ($n = 34$). ROCs were also used to assess the YLS/CMI's predictive validity, resulting in moderate to large AUC values (AR, AUC = .61; SR, AUC = .67). The mean length of follow-up time for these analyses was 35.8 months, which is longer than what is usually found in the juvenile offender literature (Cottle et al., 2001). Thus, the YLS/CMI has been found to be reliable and internally consistent, with adequate concurrent and predictive validity for use within the general juvenile offender population. However, there is a need for further research in this area, using different offender populations and utilizing additional outcome measures.

For instance, only one study (Holsinger, Lowenkamp, & Latessa, 2006) has utilized institutional misconduct as the primary measure of outcome. In this investigation, composite YLS/CMI scores were a significant predictor of institutional misconduct in a sample ($N = 80$) of incarcerated young offenders in the United States. However, there were several methodological and statistical limitations to this study. For example, days spent in the institution or length of stay was also significantly related to outcome, although the limited number of cases precluded the incorporation of further statistical controls for such influences on institutional misconduct.

Another recent study has reported preliminary psychometric data for an Australian Adaptation of the YLS/CMI (e.g., predictive validity coefficients were similar to those found

in other jurisdictions; Thompson & Pope, 2005). Test-retest results were suggestive of change (i.e., results were significantly lower at retest and were positively correlated with recidivism), although the authors acknowledge several significant methodological shortcomings, including an idiosyncratic selection of cases for re-evaluation, potential access to scores from the first assessment, and potential knowledge of outcome.

Closer to home, recently published data (Gossner & Wormith, 2007) offers preliminary support for use of the YLS/CMI in a setting with substantially different and unique demographic characteristics (e.g., disproportionate representation of Aboriginal youth) - Saskatchewan young offenders living in the community ($N = 94$). YLS/CMI total scores were strongly and significantly correlated with recidivism (charge and conviction) at 6 month follow-up for Aboriginal (charge: $r = .41$ and conviction: $r = .28$; $n = 62$) and female (charge: $r = .55$ and conviction: $r = .46$, $n = 21$) youth. Correlations with both measures of recidivism were not significant for non-Aboriginal youth, however this group was relatively small in size ($n = 32$). Restricted range in terms of risk due to selection procedures (e.g., insufficient information on file for low risk offenders) and a short follow-up time were noted to be additional limitations, and no information pertaining to interrater reliability was reported.

Other research has examined the convergence of the YLS/CMI with other assessment tools (i.e., concurrent validity). For instance, Catchpole and Gretton (2003) investigated the predictive accuracy of three young offender risk measures (YLS/CMI, PCL-YV, and SAVRY) for violent and general recidivism in a sample of 74 male and female young offenders followed up for one year post-assessment. Fifty eight percent of youths were charged or convicted for any new offense and 23% for a violent offense. The three measures

demonstrated good convergent validity (YLS/CMI and PCL, $r = .75$; YLS/CMI and SAVRY, $r = .64$; PCL and SAVRY, $r = .68$) and strong support was obtained for the predictive accuracy for both violence (AUC = .73 for all three measures) and general recidivism (YLS/CMI, AUC = .74; PCL-YV, AUC = .78; SAVRY, AUC = .74). The results of survival analysis conducted on each measure further revealed that youths scoring in the High Risk range evidenced a higher and faster rate of violent failure than Low or Moderate scoring groups.

Marczyk, Heilbrun, Lander, and DeMatteo (2003) examined the predictive accuracy of three juvenile offender measures (YLS/CMI, PCL-YV, and MAYSI) in a sample of 95 juvenile defendants (age 14-18 years) who were referred for evaluation at a university based psychological services clinic. All participants were followed up for at least one year post-assessment. YLS/CMI scores ranged from 1-36 (mean 20.1, SD = 7.7), with good interrater reliability (ICC = .82) for YLS/CMI total scores. PCL-YV scores ranged from 0-20 (mean 9.1, SD = 3.9), and also demonstrated good interrater reliability (ICC =.84). MAYSI, PCL-YV, and YLS/CMI scores were not significantly related to number of new violent charges in the community; however, it is important to note that the authors excluded non-recidivists from their analysis (which constituted 47% of the sample overall, approximately half of whom had not been released). This may have served to attenuate correlations with outcome through omitting potentially important data (i.e., the absence of any new charges is arguably important data). The authors then conducted a regression analysis with the MAYSI and YLS independently. When entered into a regression equation, the suicide ideation, angry-irritable, fighting, and anxiety subscales of the MAYSI significantly predicted recidivism. In addition, after regressing the eight criminogenic needs of the YLS on recidivism, only the previous

convictions/dispositions domain was significantly related to outcome. Finally, a regression analysis of all nine MAYSI subscales and a criminal history variable significantly predicted outcome, accounting for 29% of the total variance with an overall classification rate of 74.2%.

Most recently, Marshall, Eagan, English and Jones (2006) examined the retrospective and relative validity of the YLS/CMI and PCL-YV in a sample of 94 male and female adolescents under residential care in the United Kingdom. While both instruments were found to be similar in their ability to predict total number of charges convictions and assaults, the PCL-YV was determined to be a better predictor of staff reported violence recorded over the previous two years (PCL-YV: AUC = .73, $p < .01$; YLS/CMI: AUC = .61, $p = ns$) for male participants. Little information however, was provided on data collection procedures and interrater reliability was not reported.

Overall, psychometric data on youth adapted versions of the Level of Service Inventory (LSI), and the YLS/CMI in particular, are starting to accumulate. Correlations with outcome range from $r = .15$ to .35, and are suggestive of moderate predictive validity. However, the majority of studies have focused on predicting general as opposed violent recidivism. Limited data remains available on certain populations (e.g., female youth) due to small sample sizes and low base rates of recidivism, few studies have reported item statistics or factor structure, and current studies have largely focused on risk and need while overlooking other aspects and/or possible functions of the measure (e.g., case planning and management components and activities, evaluating treatment change). Another practical issue is local validity. It is important that generic tools are subject to validation and adjustment using local data (Miller & Lin, 2007).

To this end, normative data on a version of the adult LSI adapted for use with young offenders (Level of Service Inventory – Saskatchewan Youth Edition; Andrews, Bonta, & Wormith, 2001) has recently been obtained on a large Saskatchewan sample (N = 872). Available findings illustrate good predictive accuracy for general recidivism (r = .38; Rector et al., 2007). Case management data have also been obtained for a smaller sample of 193 young offenders (Luong, 2007), and preliminary analyses would seem to suggest that recidivism was related to the extent to which the case management function of the instrument was implemented. For instance, "appropriateness" - defined as the presence of interventions for identified needs or absence of interventions for areas that were not identified as needs - correlated significantly with recidivism (r = - .214) and was found to be a significant predictor of recidivism after controlling for ethnic/cultural background and length of follow-up (Luong, 2007).

1.3.2 *Psychopathy Checklist-Youth Version (PCL-YV)*

The Psychopathy Checklist: Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003) is a 20-item symptom construct rating scale designed to assess psychopathy in adolescents (i.e., age 12 to 17). The instrument is highly similar to its parent version, the PCL-R (Hare, 2003) in item scoring and content. Developmental modifications were made to some of the items and their scoring criteria in order to make them more relevant and applicable to youth. To cite one example, the item, *Many Short-term Marital Relationships* from the adult version was changed to *Unstable Interpersonal Relationships* on the youth version, based on the notion that most youths do not marry or have much opportunity, or perhaps, inclination to cultivate live-in relationships. Currently, separate probation and custody norms are available

for male youths and custody norms are available for female youths (Forth, Kosson, & Hare, 2003).

The extant literature has shown that the PCL-YV has strong psychometric properties, including good predictive accuracy for both general recidivism and future violence. In an early investigation, Forth, Hart, and Hare (1990) investigated the psychometric properties of an 18-item modified version of the PCL (Hare, 1980) for youths in a sample of 75 male young offenders. Adapted PCL scores demonstrated good internal consistency ($\alpha = .90$) and interrater reliability (ICC = .88). PCL scores were also significantly correlated with number of conduct disorder symptoms ($r = .64$), age at first arrest ($r = -.25$), number of previous violent offenses ($r = .27$), number of institutional charges for violent or aggressive behaviors ($r = .46$), and number of charges and convictions for new violent offenses ($r = .26$). However, PCL scores were not significantly associated with criterion measures of nonviolent recidivism.

Brandt, Kennedy, Patrick, and Curtin (1997) subsequently examined the psychometric properties of the PCL-R adapted for youth in a sample of 130 male adolescents, released from a juvenile detention facility. The measure demonstrated good internal consistency ($\alpha = .85$) and inter-reliability (ICC = .87). PCL-R scores were also correlated with several criminal behavior criteria including age of first arrest (total score, $r = -.46$, Factor 1, $r = -.36$, Factor 2, $r = -.43$), number of previous referrals (total score, $r = -.46$, Factor 1, $r = -.36$, Factor 2, $r = -.43$), prior commitments (total score, $r = .49$, Factor 1, $r = .38$, Factor 2, $r = .47$), and crime severity (total score, $r = .25$, Factor 1, $r = .24$, Factor 2, $r = .15$ [NS]). PCL-R scores were also significantly correlated with institutional infractions, including physical, verbal, and total infractions. Finally, hierarchical multiple regression

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analyses demonstrated that Factor 1 (Interpersonal/Affective) scores predicted recidivism after controlling for Factor 2 (Antisocial Lifestyle) score and other relevant variables.

Investigation of the PCL-YV has produced similar or better results than the youth-adapted adult version. For instance, Gretton, McBride, Hare, O'Shaugnessy, and Kumka (2001) investigated the predictive accuracy of the PCL-YV for various forms of recidivism in a sample of 220 adolescent sex offenders followed up for 55-months following the completion of inpatient treatment. Overall, 51% of the sample was convicted for any new offense (i.e., general recidivism), 30% for a violent offense, and 15% for a sexual offense. The measure demonstrated good internal consistency ($\alpha = 82$) and inter-rater reliability (ICC = .82). PCL-YV correlations with outcome were as follows: general recidivism ($r = .25$), violent recidivism ($r = .19$), sexual recidivism ($r = .09$, NS). The high risk group (PCL-YV $\geq$ 30) demonstrated a higher and faster rate of general recidivism than the medium (PCL-YV 18-29) and low risk (PCL-YV < 18) groups. The high risk group also evidenced a higher and faster rate of violent and sexual recidivism than the low risk group. Gretton et al. also examined the relationship of psychopathy and phallometrically tested sexual deviance to recidivism via survival analysis. The high psychopathy/high deviance group demonstrated a higher and faster failure rate for general recidivism than high psychopathy-low deviance youths and low psychopathy youths (irrespective of deviance). With respect to violent offenses, the high psychopathy/high deviance group had a significantly higher and faster failure rate than the low psychopathy/low deviance group, but no other groups. There were no significant group differences for sexual recidivism using survival analysis.

Gretton and colleagues also examined the long-term predictive validity of the PCL-YV in a sample of 157 young offender males (ages 12-18 years) over a 10-year follow-up

(Gretton, Hare, & Catchpole, 2004). Over the course of the 10-year follow-up period, 95% of the youth were convicted for a nonviolent offense, 68% for a violent offense, and 11% for a sexual offense. PCL-YV scores were significantly correlated with any future violent conviction ($r = .32$), as were individual Factor 1 ($r = .24$) and Factor 2 ($r = .42$) scores. PCL-YV scores were also correlated with nonviolent offending ($r = .19$) but not sexual offending ($r = .11$). Factor 2 ($r = .33$), but not Factor 1 ($r = .04$), was significantly correlated with nonviolent offending. PCL-YV total scores were also significantly inversely related to time to first violent conviction ($r = -.40$) and time to first nonviolent offense ($r = -.22$). Results of survival analyses revealed that that youths scoring in the moderate (18-29.9) and high ($30 \leq$) psychopathy range recidivated violently at a higher and faster rate than youths scoring low ($\geq$ 17.9). Finally, the authors found that PCL-YV total scores continued to predict violent recidivism after statistically controlling for criminal history and conduct disorder variables.

In contrast, a second long-term predictive validity study conducted by Edens and Cahill (2007) on an ethnically diverse sample (i.e., 43.4% African American; 30.3% Hispanic; 25% Caucasian; 1.3% Asian) of incarcerated adolescent male offenders ($N = 76$) in the southwestern United States obtained only modest results over the 10 year follow-up period. In fact, neither total scores, nor factor scores, of the PCL-YV predicted general or violent recidivism. However, further analyses produced little evidence that ethnicity may be moderating the relationship between PCL-YV scores and recidivism. Although the authors note that small sample sizes for each group limited their ability to detect meaningful differences. In a follow-up meta-analysis comparing the scores of "Black" and "White" youth on the PCL-YV (McCoy & Edens, 2007), Black youths were rated as significantly higher, however the overall magnitude of this effect was small ($d_w = .20$, $p = .03$). The reader

is reminded that in the majority of studies, ethnicity has been operationalized in a fairly simplistic fashion, and potentially important variables (e.g., level of acculturation) require further investigation.

Furthermore, the majority of ethnic analyses have examined African American youth. Very limited information is available regarding the validity of the PCL-YV with other ethnic and cultural groups, including Aboriginal youth. The writer is aware of only one published Canadian study (Schmidt et al., 2006) that sought specifically to examine important, but neglected, adolescent subgroups, including community-based adjudicated Aboriginal ($n = 39$) and female ($n = 47$) youth. In this Northern Ontario sample ($N = 127$), the PCL-YV demonstrated strong predictive validity with Aboriginal youth for both general and violent recidivism (e.g., AUCs = .76 and .83 respectively). Moreover, Aboriginal youths were increasingly more likely to violently reoffend at higher PCL-YV scores than Caucasian youths. More modest results however, were obtained for female youth (e.g., AUC = .59 for general recidivism; AUC = .61 for violent recidivism) and the predictive validity of the PCL-YV with female adolescents has come under question in recent years.

As Odgers et al. (2005) have recently pointed out, few published studies have included adolescent girls, and most have not had adequate power to perform separate analyses by gender. Hence, Odgers and colleagues evaluated the convergent and predictive validity of the PCL-YV among a sample of 125 adolescent females incarcerated at a correctional facility in the southeastern United States. Almost all participants reported being involved in a serious violent act and the majority of the sample identified as African American (49%). In short, total PCL-YV scores were predictive of concurrent physical aggression ($\beta = .35$, $p < .01$) when evaluated within a structural equation modeling

framework (SEM), but the relationship between psychopathy (i.e., total and factor scores) and aggression was no longer significant once victimization was entered into the model. Recidivism data were collected for 62 participants, with an average follow-up time of 250 days. Neither PCL-YV total scores or factor scores predicted future recidivism ($b = 0.03$, $p = .60$), although past victimization experiences were predictive of reoffending ($b = 0.92$, $p = .05$). Despite some methodological shortcomings (e.g., ethnically diverse sample, relatively short follow-up time, challenges associated with the retrospective nature of reporting for victimization experiences, the assumption that maltreatment precedes the manifestation of psychopathic traits as implied by the order of entry into the model), the results highlight the need for a better understanding of how the PCL-YV functions when applied to females, and the need to reconsider multiple domains of risk in the lives of girls who engage in antisocial behavior.

It is also worth noting that although the factor structure of the Psychopathy Checklist has been hotly debated in the adult literature, to date, very few studies have examined the structural properties of the PCL-YV. Preliminary findings using confirmatory factor analysis (CFA) models have generally supported both three (e.g., arrogant and deceitful interpersonal style, deficient affective experience, impulsive and irresponsible style) and four (e.g., interpersonal, affective, lifestyle, and antisocial) factor models (e.g., Forth et al., 2003; Salekin et al., 2006). In the first large scale ($N = 505$), cross-national (i.e., samples from North America and United Kingdom) study to systematically examine the latent structure of the PCL-YV, modified 3- and 4-factor item models were associated with generally good fit, and a four factor "parcel" model exhibited excellent fit (Neumann et al., 2006). However, this model includes a social deviance/antisocial factor, the centrality of which for

conceptualizing the construct of psychopathy has been the subject of debate. Moreover, participants were limited to incarcerated male youth. Future research is clearly needed, due to the psychometric and clinical importance of determining an appropriate and replicable factor structure (i.e., structural validity), and should examine the external validity of the obtained factor solution (i.e., correspondence with external criteria). For instance, Amato, Cornell, and Fan (2008) offer preliminary support for a four factor parceled model of adolescent psychopathy and further demonstrated external validity based on correspondence with several factor scores on the Millon Adolescent Clinical Inventory (MACI), a widely accepted self-report inventory used to measure adolescent personality patterns and psychopathology, Further work along these lines with additional external criteria is needed.

To assist in synthesizing the growing body of research on the PCL-YV, Edens and colleagues (2001) conducted a narrative review of studies that examined the relationship of the PCL-YV to violent and aggressive behavior among juvenile offenders. Although it was concluded that there is a "moderate" relationship between PCL-YV scores and violence (including institutional and recidivistic) in youths, the authors offered some concerns about the use of the PCL-YV for this purpose. First, the authors point out that several items represent developmentally normal behavioral attributes of youth (e.g., impulsivity, poor behavioral controls, need for stimulation). Second, given that adolescence is a period of substantial developmental change and transition, the authors argue that the developmental stability of juvenile psychopathy is unresearched, and hence, uncertain. As such, the PCL-YV should be currently viewed as short-term appraisal measure for various forms of aggressive behavior in juveniles. Additional concerns that have been raised by researchers

and clinicians include the negative connotations that the term "psychopathy" has for treatment success and overall long term outcome (e.g., Salekin, 2002).

Other investigators (e.g., Gretton, Hare, & Catchpole, 2004) have acknowledged the concerns raised about the potential for misuse, misapplication, and mistaken conceptualization of juvenile psychopathy; however, they note that the characteristics of juvenile psychopathy (i.e., PCL-YV items) are extreme variants of adolescent personality and behavioral attributes, rather than being "normal" features of adolescence. They further note that high psychopathy scores ($\geq$ 30) are very rare in youths and represent an extreme condition. Even "normal" adolescents only register an average score of 5 on the PCL-YV, in comparison to an average score of 20 for young offenders.

It has also been contended that there are clear benefits to studying juvenile psychopathy such as gaining a better understanding of the etiology of psychopathy so as to guide prevention and intervention efforts, and parsing out some of the heterogeneity of the disruptive behavior categories of the *DSM-IV* (e.g., Salekin, 2006). For instance, Salekin and colleagues (2004) examined the construct of psychopathy as applied to 130 adolescent offenders. The PCL-YV significantly postdicted violent ($B = .34$), nonviolent ($B = .18$), and general ($B = .30$) recidivistic offenses and offered incremental improvement in postdiction over *DSM-IV* disruptive behavior disorders. PCL-YV scores were also correlated with other measures of antisocial behavior including total number of charges ($r = .36$), number of violent charges ($r = .28$), number of nonviolent charges ($r = .30$), drug use ($r = .29$).

In the first quantitative review of the first generation of PCL-YV research described above, Campbell and colleagues (2005) concluded that the PCL-YV can produce reliable total scores when used with male offenders or forensic mental health samples of European

decent. Specifically, they obtained an average internal consistent reliability estimate of α = .85 and average interrater reliability estimate of ICC = .91, across 27 independent samples.

A second meta-analytic review of Psychopathy Checklist measures that included 21 non-overlapping samples of male and female juvenile offenders (Edens, Campbell, & Weir, 2007), found that psychopathy was significantly associated with general (r_w = .24) and violent (r_w = .25) recidivism. The magnitude of this association was described as being on the border of a "medium effect" according to Cohen's (1988) criteria. Considerable heterogeneity was observed among the effects and analyses of potential moderators which suggested that this could be attributed, in part, to the gender and ethnic composition of the constituent samples. Specifically, effect sizes for female samples were mostly small and nonsignificant and psychopathy was found to be a weaker predictor of violent recidivism in ethnically heterogeneous samples. Finally, it warrants mentioning that in this review, Psychopathy Checklist measures performed comparably to the YLS/CMI.

A third meta-analysis investigated the association between PCL-YV scores and institutional misconduct across 15 non-overlapping data sets (N = 1310) (Edens & Campbell, 2007). Weighted mean correlations were small to moderate in size, and relatively consistent across three outcome categories (Total r_w = .24; Aggression r_w = .25; and Physical Violence r_w = .28). There was considerable heterogeneity among the effects, particularly in the case of aggressive and physically violent behavior. However, much of the variability could be attributed to one study. Moreover, correlations with physical violence were not reported in a third of the samples. As the samples lacking this information reported much lower effect sizes for total and aggressive misconduct, the authors suggest that the observed relationship between PCL-YV total scores and physically violent behavior in institutional setting may be

somewhat inflated. Publication status was a significant moderator variable in relation to the magnitude of the effects for the aggression category, with published studies reporting significantly larger effects than unpublished reports, despite nonsignificant differences in methodological quality, and sample size, as coded by the authors. Significant differences also failed to emerge in terms of the predictive validity of factor scores, although the trend was in the direction of Factor 2 (Antisocial Lifestyle) being higher than Factor 1 (Interpersonal/Affective) for all categories.

Although the authors acknowledge that the results of the second meta-analysis may appear inconsistent with the robust association between PCL-YV scores and aggression found in their first meta-analysis, it would seem that sampling issues (e.g., setting, system, ethnicity, gender, nationality) may be contributing to the variability this relationship. Clearly, further replication, calibration, and cross-validation research with different populations, in a variety of settings, conducted by independent researchers, using multiple outcome measures, is necessary to develop better understanding and to further evaluate the dimensional identity of the tool.

The authors have since pointed out that if even if the association between psychopathy and violence is defensible in the aggregate (e.g., as determined by meta-analysis), individual clients are never in aggregate contexts (Edens, 2006). This argument has been advanced with respect to other actuarial risk assessment instruments (ARAIs) commonly used to assess violence risk. In fact, Hart, Michie, and Cooke (2007) suggest that due to the high 'margins of error' of group vs. individual predictions of violence, "ARAIs should be used with great caution or not at all" (p. 60). However, practitioners should never rely solely on the Psychopathy Checklist (or any other ARAI for that matter) when asked to

make inferences about risk for violence and criminality (e.g., Hemphill & Hare, 2004). It is explicitly stated in the user's manual (Forth et al., 2003) that "the PCL-YV should not be the sole criterion used to make decisions about a youth for dispositions within the mental health and criminal justice systems" (p. 4).

1.3.3 *Structured Assessment of Violence Risk in Youth (SAVRY)*

The SAVRY (Borum, Bartel, & Forth, 2002) is a multi-item clinician rated measure designed to evaluate violence risk in youths. Inspired from the Historical Clinical Risk-20 (HCR-20: Webster, Douglas, Hart, & Eaves, 1997) tradition, the SAVRY consists of 10 historical risk items, 6 social-contextual risk items, 8 individual-clinical risk items, and 6 protective factors. Each risk item is rated on a 3-point (0,1,2) scale, whereas protective factors are rated as being either present or absent. Following a rating of the items, the clinician assigns a summary risk rating of Low, Medium, or High risk. Risk ratings can be based either on a summation of the items or structured professional judgment. The authors report adequate internal consistency (α = .82) and interrater reliability (ICCs range from .81 to .83 for the SAVRY total score and from .72 to .77 for the summary risk rating) as well as good concurrent (SAVRY risk total correlates .78 to .89 with other youth measures), criterion (SAVRY scores correlate between .25 and .72 with various measures of violence), and predictive validity (AUCs for the total score average about .74 to .80; Borum & Verhaagen, 2006). However, at the time of this writing, there was little published data on the SAVRY (e.g., Catchpole & Gretton, 2003), although additional research was anticipated. (The results obtained by Catchpole and Gretton (2003) are presented the YLS/CMI research review above and will not be repeated here.)

The approach to risk assessment employed by the SAVRY represents another recent development in the field - the advancement of Structured Professional Judgment (SPJ) schemes (e.g., The Short-Term Assessment of Risk and Treatability - START; Webster, Martin, Brink, Nicholls, & Middleton, 2004; or the Historical Clinical Risk-20 - HCR-20; Webster, Douglas, Hart, & Eaves, 1997). Such schemes have combined structured assessment approaches with actuarial scores. Research on the START with adults appears preliminary and limited to forensic psychiatric patients - predominately male inpatients with schizophrenia (e.g., Nicholls et al., 2006). The HCR-20, on the other hand, has accumulated a large volume of research support, both for the predictive accuracy of numeric scores as well as the validity and reliability of SPJ-based summary risk ratings (e.g., Douglas, Yeomans, & Boer, 2005).

1.3.4 *Massachusetts Youth Screening Instrument (MAYSI-2)*

Grisso, Barnum, Fletcher, Cauffman, and Peuschold (2001) describe the development and validation of a 52-item self-report measure of mental health concerns for youth in the justice system - the Massachusetts Youth Screening Instrument. The MAYSI-2 was administered to large samples of male and female youth in juvenile facilities in two jurisdictions – Massachusetts ($N = 1279$) and California ($N = 3804$)..A factor analysis of the MAYSI-2 items was conducted on males and females separately. After inspection of the resulting models, the authors settled on 7 factors reflecting mental, emotional, and behavioral concerns of youths (Alcohol/Drug Use, Angry-Irritable, Depressed-Anxious, Somatic Complaints, Suicide Ideation, Thought Disturbance, Traumatic Experiences). Four of the MAYSI-2 scales converged well with similar constructs assessed by the Million Adolescent Clinical Inventory (Drug/Alcohol Use with Substance Proneness, Angry-Irritable with

Impulsive Propensity, Depressed-Anxious and Depressed Affect, and Suicide Ideation and Suicidal Tendency). The authors concluded that the MAYSI-2 was a psychometrically strong measure of mental, emotional, and behavioral concerns in juvenile offenders.

Archer, Vauter Stredny, Mason, and Arnau (2004) later replicated the procedures used by Grisso and colleagues (2001) in order to independently evaluate the psychometric properties of the screening tool among adolescents in detention facilities. The sample included both male and female youth and was primarily African American (74%). Overall, findings regarding internal consistency, test-retest reliability, factor structure, and external concurrent validity, were markedly similar to those obtained by Grisso and colleagues (2001). Exceptions included relatively weak factor loadings for girls, and a weaker loading pattern for the Traumatic Experiences and Thought Disturbance scales. In light of the less clearly defined item loading pattern and the lower reliability ($\alpha = .55$) of the Thought Disturbance scale, this scale should be interpreted with caution and requires further investigation (Archer et al, 2004).

Cauffman and MacIntosh (2006) have also raised concerns about certain subscales of the MAYSI-2. They applied the Rasch Model to evaluate the racial/ethnic and gender differential item functioning (DIF) of the MAYSI-2. The majority of participants ($N = 3906$) in this study were ethnic minority youth from lower income families. A number of items were found to exhibit significant misfit and/or differential functioning on the basis of gender and/or race/ethnicity, leading the researchers to raise concerns about several subscales including, the Thought Disturbance, Angry-Irritable, Alcohol/Drug Use, Traumatic Experiences, and Suicide Ideation subscales.

With respect to predictive validity, as mentioned earlier, Marczyk, Heilbrun, Lander, and DeMatteo (2003) examined the predictive accuracy of three juvenile offender measures, including the MAYSI-2 in a sample of 95 juvenile defendants (age 14-18 years) who were referred for evaluation at a university based psychological services clinic. All participants were followed up for at least one year post-assessment. Although MAYSI-2 scores were not significantly related to number of new violent charges in the community, when entered into a regression equation, the suicide ideation, angry-irritable, fighting, and anxiety subscales of the MAYSI-2 significantly predicted recidivism. A regression analysis of all nine MAYSI-2 subscales and criminal history variable significantly predicted outcome, accounting for 29% of the total variance with an overall classification rate of 74.2%.

In a second study with the same sample, Marczyk and colleagues (2005) examined the relationship of the same three measures, and their component risk factors, to juvenile certification status. (In the United States the court can "decertify" a young offender to juvenile court, or retain the defendant in criminal court.) Independently, all three instruments were positively and moderately associated with certification outcome status. The YLS/CMI appeared to have the most predictive utility (overall classification rate = 67.4%), followed by the MAYSI-2 (overall classification rate = 63.4%), and the PCL-YV (overall classification rate = 57.9%). However, in combination, YLS/CMI, MAYSI-2, and PCL-YV total scores did not predict certification status with better accuracy than the YLS/CMI total score alone.

More recently, the Angry-Irritable subscale of MAYSI-2 was found to predict institutional maladjustment among severe and chronic male juvenile offenders (N = 104; 51% African American; 45% European American) committed to residential facilities in the southeastern United States (Butler, Loney, & Kistner, 2007). More specifically, the subscale

was significantly associated with severe rule violations (Majors: $r = .20$, $p < .05$) and intensive supervision placement (ISP: $r = .28$, $p < .01$) during the first 90 days of adjustment to the facility. Group analyses comparing youth scoring high and low on the Angry-Irritable subscale on the ISP and Majors variables, and corresponding effect size calculations, revealed a large effect ($d = .79$) for differences on the ISP variable and a medium-to-large effect for Majors ($d = .66$). Finally, 59% of youth with ISPs were correctly classified using the published subscale cut scores. However, hit rate analyses revealed a high level of false negatives, suggesting that almost half of the youth scoring below cutoff on the Angry-Irritable subscale subsequently engaged in severe rule violation and/or persistent aggression during their adjustment to the facility. Finally, it is worth noting that a minimal number of participants in this study actually obtained clinical elevations on the MAYSI-2.

In sum, while a brief screening instrument, such as the MAYSI-2, may help to pinpoint youth in the juvenile justice system that are at risk for mental health problems and adjustment difficulties, the bulk of the research has focused on establishing the basic psychometric properties of the MAYSI using predominately male samples. There is a need for research investigating the predictive validity and clinical utility of the tool with more varied samples across juvenile justice settings, especially given the current widespread use of the MAYSI in the United States. Future research would be well advised to consider how the MAYSI-2 relates to other established predictors of aggression and criminal behavior. Canadian research on the MAYSI is also scant.

1.3.5 *The Jesness Personality Inventory (Jesness)*

The Jesness Personality Inventory (Jesness) was originally developed by Carl Jesness in 1962 as a self-report measure of personality and emotional functioning in adolescents,

particularly delinquents. The original Jesness is comprised of 155 items and a newer version, revised in 2003, consists of five additional (i.e., 160) items. The measure is further subdivided into 10 scales developed through a combination of rational and cluster analytic scale construction procedures: Social Maladjustment, Value Orientation, Immaturity, Autism, Alienation, Manifest Aggression, Repression, Withdrawal, and Denial. Scale scores are reported as T-scores (i.e., mean of 50, standard deviation of 10). The measure also includes an Asocial Index, developed through discriminant function analysis, which was found to be associated with a high frequency of antisocial behavior in the original validation sample. The Asocial Index is intended to be an estimation of the youth's risk for re-offending, with high scores (e.g., $T \geq 70$) indicating high probability of recidivism (Jesness, 1988).

However, there is limited psychometric research on the Jesness with forensic populations and little evidence that the scales comprising this measure predict recidivism. Tollet and Benda (1999) conducted a study of 244 adolescents (ages 10-17, 216 males and 26 females) who had been in a Serious Offender Program operated by the Arkansas Division of Youth Services (DYS) to examine factors that predicted recidivism (i.e., return to DYS within a one year follow-up period). Several significant predictors of returning to DYS emerged including the Asocial Index and Social Maladjustment (negative relationship) scales from the Jesness. However, the magnitude of the Jesness' relationship to outcome was quite small, and it failed to make a significant contribution to predicting recidivism when other more robust psychological, demographic, and criminal history variables were considered.

In a later paper, Benda, Flynn Corwyn, and Toombs (2001) examined static and dynamic predictors of recidivism in a sample of 414 (339 males and 75 females) adolescent offenders over a two-year follow-up. Overall, 65.2% of the sample recidivated. Significant

predictors emerging included the Jesness Denial and Asocial Index Scales, as well as female gender, gang membership, MMPI-Pd score, younger age beginning drug use, prior incarcerations, and self-report measured chemical abuse, thought disturbance, antisociality, and self-deprecation. Although there were no significant univariate differences between recidivists and non-recidivists on any of the Jesness scales, it is important to note that the Jesness did make independent contributions to predicting recidivism in conjunction with the aforementioned variables as demonstrated through logistic regression analyses.

Most recently, Allen, Rupert, Spatafora, Windell, Gaulier, and Conti (2003) examined the Jesness in a U.S. sample of 94 adolescent female offenders. Female youths who had committed violent offenses ($n = 45$) were compared to a group of female youths who had committed nonviolent offenses ($n = 49$). Contrary to the study authors' expectations, nonviolent females scored significantly higher on several Jesness scales including Social Maladjustment, Value Orientation, Alienation, and Autism. The findings suggest that the nonviolent females in the sample tended to be more delinquently oriented than the violent female youths. The authors speculate that the violence of these girls may have occurred in response to emotionally charged interpersonal conflict and may not have been delinquently motivated.

In summary, the young offender literature suggests that although the Jesness may have some capacity to predict recidivism, it should be used with caution when forming conclusions regarding risk for future antisocial behavior, including violence, and should not be used as a stand-alone tool for this purpose. By contrast, the YLS/CMI and PCL-YV appear well-established and are among the most empirically supported and psychometrically sound forensic youth assessment measures.

1.3.6 *Violence Risk Scale: Youth Version (VRS-YV)*

Despite the promising array of youth risk measures, some of which are designed to assess violence risk and are potentially dynamic, there seems to be a continued need for a tool capable of providing a structured and systematic evaluation of treatment-related change, that can inform intervention, provide statements about treatment progress (or lack thereof), and assist in providing a clearer conceptualization about possible reductions in risk.

The Violence Risk Scale - Youth Version (VRS-YV; Lewis, Wong, & Gordon, 2004) is a 23-item, clinician rated, risk assessment and treatment planning tool designed to assist treatment providers working with violent youth in appraising risk for future violence, identifying treatment targets linked to violence, and assessing treatment readiness and change. It is comprised of four static (i.e., historical, unchanging) and 19 dynamic (i.e., potentially changeable) items (see Table 1.2 for a complete list of VRS-YV items) and also incorporates a modified stages of change model. Items were culled from the empirical research literature on violence risk assessment and treatment in youths, or adapted from the parent measure (VRS) by the scale authors (Lewis, personal communication).

As the VRS-YV is a preliminary version of an evolving clinical tool that is awaiting validation, the empirical support for each static and dynamic item, including the item's relationship to violent and criminal behavior, as compiled by the writer, is presented below, followed by a review of the model used to conceptualize behavior change (i.e., the Transtheoretical Model of Change). Finally, considering that the VRS-YV is specifically designed to further the integration of assessment and treatment approaches with violence-prone youth, empirically supported treatment approaches for young offenders, including violent youth, will also be reviewed.

Table 1.2

VRS-YV static and dynamic items

Static Items

S1   Early Onset of Serious Antisocial Behaviors
S2   Criminality
S3   Instability of Family Upbringing
S4   Exposure to Antisocial Behavior in the Family

Dynamic Items

D1   Violent Lifestyle
D2   Callous and Unemotional
D3   Criminal Attitudes
D4   Negative Attitude toward Education
D5   Antisocial Peers
D6   Interpersonal Aggression
D7   Poor Emotional Control
D8   Violence during Institutionalization
D9   Weapon Use
D10 Lack of Insight into Cause of Violence
D11 Mental Disorder
D12 Substance Abuse
D13 Impulsivity/Attention Deficits
D14 Cognitive Distortions
D15 Poor Parent-Child Interaction
D16 Family Stress
D17 Social Isolation
D18 Community Disorganization
D19 Poor Compliance

1.4 The Violence Risk Scale: Youth Version (VRS-YV)

Static and Dynamic Risk Factors: Research Synopsis

1.4.1 *Static Factors*

1.4.1.1 *S1 Early onset of serious antisocial behaviors*

The extant literature has demonstrated that the earlier a child or youth becomes involved in violent or antisocial conduct, the poorer his or her prognosis, and the greater his or her likelihood of such future behavior (e.g., Farrington, Loeber, Elliot, Hawkins, Klein, McCord, Rowe, & Tremblay, 1990; Loeber & Dishion, 1983; Moffit, Caspi, Dickson, Silva & Stantion, 1996). In a review of approximately 40 outcome studies that examined several predictors of violence in juveniles, Hawkins et al. (1998) found that an early onset of violence and delinquent behavior was positively associated with various violent outcome criteria, including self-report and official records of violent conduct. For instance, Elliott's (1994) analysis of data from the National Youth Survey illustrates that 45 percent of youths who initiated violence by age 11 went on to commit violent offenses by their early 20s. Proportionally fewer youths (25 percent) who initiated violence between the ages of 11 and 12 committed violent offenses into adulthood. An even smaller percentage of adolescent initiators (ages 13-17) committed subsequent violent offenses. Similar results were found in Thornberry et al.'s (1995) analysis of data from the Rochester Youth Development Study. Specifically, 39 percent of children who initiated violence before age 9, and 30 percent of youths who initiated violence between the ages of 10 and 12, committed subsequent violent offenses, whereas only 23 percent of youths who initiated violence after age 13 engaged in later violence. Stouhamer-Loeber and Loeber (2002) further contend that the majority of persistent serious violent offenders have an early onset of serious delinquency (i.e., between

the ages of 7 and 14 years). In their research, almost half the young males who eventually became persistent serious violent delinquents had an onset of serious delinquency before age 12 years. In a longitudinal study conducted by Clingempeel and Henggeler (2003), over 80 aggressive juvenile offenders (mean age = 15.6 years) were classified as persistors ($n = 55$) or desistors ($n = 25$) with aggressive crimes five years later (mean age = 20.6 years). Persistors committed frequent and serious aggressive acts, five years earlier than desistors, and behaved more aggressively towards peers on the basis of both self-report and official records.

Early onset of delinquent and/or disruptive problem behaviors is also predictive of violent behavior and recidivism. According to Loeber and Farrington (2000), many youth who become serious and violent offenders have a long history of non-delinquent, disruptive problem behaviors during childhood. Typical disruptive behaviors are serious and persistent disobedience, frequent lying, aggressive behaviors, minor forms of theft, truancy during elementary school, and early substance use. Indeed, a study group on very young offenders (Farrington, 2000) found that an onset of delinquency prior to age 13 years increases the risk of later serious, violent, and chronic offending by a factor of 2-3. Taken together these studies suggest that the youths who commit the most frequent and serious violent acts begin during childhood (Loeber et al., 1998; Moffitt, 1993; Tolan, 1987; Tolan & Gorman-Smith, 1998).

An early onset of antisocial behavior has also been associated with increased risk for general recidivism. For instance, in their meta-analysis of 28 juvenile offender recidivism studies, Cottle, Lee, and Heilbrun (2001) found that Age at First Commitment (mean $r = -.35$) and Age at First Contact with the Law (mean $r = -.34$) to be among their strongest

predictors of general re-offending. Moffit (1993) has further contended that age at first arrest may be the best single variable that distinguishes between adolescent-limited and life course persistent offending. Several additional studies have also documented a link between age variables and general recidivism, including age at first conviction (Myner et al., 1998 Katsiyannis & Archwamenty, 1997; Archwamenty & Katsiyannis, 1998) and young current age (Dembo et al., 1998; Hoge et al., 1996).

1.4.1.2 *S2 Criminality*

Past criminality has been shown to be a robust predictor of future criminal acts (Andrews & Bonta, 1998; Bonta, 1997; Gendreau, Little et al., 1996). Moreover, research has shown that prior criminal behavior (including official charges or convictions) is strongly predictive of future violence. For instance, in a meta-analysis of 58 prospective studies, with 38 254 subjects, severity of crime, repeat offending, and prior criminal activity, were the strongest predictors of crimes against persons (Derzon, 2001). In another extensive meta-analysis (i.e., 34 source studies), Lipsey and Derzon (1998) found several criminal history variables among 12-14-year olds to be significantly predictive of violence or serious delinquency at age 15-25, including general criminal history (including violent and nonviolent offenses), having previously recidivated with a physically violent offense, and having committed any person crimes by age 12-14.

Individual studies have further demonstrated that youths who were placed in a detention centre for a violent felony or misdemeanor were significantly more likely to be arrested for a violent offense following their release (Dembo et al., 1991). Moreover, Shields and Simourd (1991) found that institutionally violent youth had more serious criminal histories as measured by the YO-LSI, than non-institutionally violent youth. Lattimore,

Visher, and Linster (1995) have since determined that youth with a long history of arrest and extensive prior charges/convictions for violence were more likely to be rearrested for future acts of violence. Antisocial behaviors such as stealing and destruction of property (Mitchell & Rosa, 1979); drug selling (Maguin et al., 1995); and early sexual intercourse (Beyers et al., 2001; Farrington, 1989); have also been associated with a greater risk of violence among males (Hawkins et al., 2000).

In terms of general recidivism, the Cottle et al. (2001) meta-analysis demonstrated significant relationships between several criminal history variables and recidivism, including length of first incarceration (mean r = .19), number of prior commitments (mean r = .17), type of crime (mean r = .16), and number of prior arrests (mean r = .06). All told, the relationship of criminal history to general recidivism in youths has been documented by many individual studies (Benda et al., 2001; Dembo, 1998; Funk, 1999; Katsiyannis & Archwamenty, 1997; Myner et al., 1998; Niahros & Routh, 1992; Rasmussen, 1999; Tollet & Benda, 1999). In one such study, the odds of being returned to a Serious Offender Program operated by the Arkansas Division of Youth Services (DYS), one year post release, were increased by 13.5 for those youth who had a history of prior juvenile commitments (Benda & Tollet, 1999).

1.4.1.3 *S3 Instability of family upbringing*

Numerous studies have linked many different aspects of family functioning to adverse outcomes, including delinquent and violent behavior, in youths. Lack of parental monitoring, poor discipline methods, and conflict about discipline, have all been related to participation in delinquent and violent behavior, as have low levels of parental warmth, acceptance, and affection, low cohesion, high conflict, and hostility (Capaldi & Patterson,

1996; Farrington, 1989; Farrington, 1994; Gorman-Smith et al., 1996; Melton, & Smith, 1992; Patterson, Reid, & Dishion, 1992), and although family characteristics suggesting familial antisocial behavior or values such as family history of criminal behavior, harsh parental discipline, and family conflict have been among the most consistently linked (Gorman-Smith et al., 1998; Loeber & Dishion, 1983; Loeber & Stouthamer-Loeber, 1987; McCord, 1991; McCord, McCord, & Howard, 1963; Patterson & Stouthamer-Loeber, 1984; Tolan & Loeber, 1993), studies examining specific relations between types of delinquent behaviors and family problems suggest that there may be differences in how family variables relate to participation in violent and non-violent offending (Gorman-Smith et al., 1998). For instance, McCord (1980) found that although violent and non-violent offenders were both poorly supervised, parental conflict and parental aggressiveness predicted violent offending, whereas lack of maternal affection and paternal criminality predicted involvement in nonviolent crimes. More recently, Gorman-Smith and colleagues (1996) found that families of violent offenders reported significantly lower levels of family cohesion (as evidenced by good support, organization, and emotional warmth, and less effective parental discipline) than families of nonviolent delinquents (although, lower parental monitoring was related to level of involvement for both groups).

The advent of meta-analytic techniques has helped to integrate the results from the large number of studies that have been conducted in this area. In 1986, Loeber and Stouthamer-Loeber completed a meta-analysis of concurrent and longitudinal studies on the relation of family factors and delinquent behavior. Four heuristic paradigms were identified - neglect, conflict, deviant behavior and attitudes, and disruption. More than a decade later, the relation between these patterns of family problems and delinquent behavior over time was

evaluated in a sample of inner-city adolescent males (Gorman-Smith et al., 1998). The findings indicate that patterns of family problems are differentially related to offender groups and two different patterns of family functioning were related to serious chronic (including violent) offending. Members of this group were more likely to have families characterized by multiple problems including disruption, conflict, and lack of parental involvement. They were also more likely to have families characterized by deviant behavior and attitudes. This included parental involvement in antisocial and criminal behavior, and/or supporting antisocial or aggressive beliefs (see the section entitled *Exposure to Antisocial Behavior in the Family*).

More recent meta-analytic results suggest that variables indicative of familial instability (e.g., inadequate supervision, inappropriate discipline, emotional, physical, and/or sexual abuse and neglect) have modest, but significant, relationships to future violence. For instance, the Lipsey and Derzon meta-analysis (1998) found that having abusive parents ($r = .09$) and coming from a broken home ($r = .10$) were modestly related to future violence or serious delinquency among 12-14 year-olds. The Hawkins et al. (1998) review also found that separation from family and leaving home early (i.e., before age 16) to be predictive of future violence. Related predictors, although at times weak, included poor family management (e.g., lax/punitive discipline, poor supervision; $r = .12$), child maltreatmbent ($r = .06$), sexual abuse ($r = -.03$), physical abuse ($r = .02$), and neglect ($r = .07$).

It should be noted that effect sizes vary considerably across studies linking maltreatment to official and self-reported violence in youth (Hawkins et al., 1998). This being said, a recent paper by Herrenkohl, Huang, Tajima, and Whitney (2003) pointed out that "well-designed studies" have shown a developmental link between physical child abuse

and youth violence (p. 1190). For example, the results of Widom's (1989; 1998; 2000) longitudinal cohorts study show a strong link between physical child abuse and youth arrests for violent crime. (Similar findings have since been obtained with female delinquents, Archwamenty & Katsiyannis, 1998). Another well-designed study investigating potential mediators of physical abuse in the prediction of violent behavior (Herrenkohl et al., 2003) found that physical abuse predicts violent behavior indirectly through variables that reflect later social experiences of youths and their attitudes about the use of violence. Thus, although physical abuse would appear to be an important predictor of violence during adolescence, most of the explanatory power can be attributed to proximal adolescent variables such as school commitment and antisocial peer involvement. In Herrenkohl et al.'s (2003) model, abuse predicted violent attitudes, which predicted involvement with antisocial peers, which, in turn, predicted violent behavior (proportion of explained variance $R^2 = 74.3\%$).

This model is consistent with the seminal work of Dodge, Bates, and Petit (1990) published in the journal *Science*. These researchers examined the effects of abuse on aggressive behavior, and proposed a mechanism through which such an association may operate, using a prospective design and a representative sample of over 300, four year-old children. Results confirmed that early physical abuse is a risk factor for later aggressive behavior above and beyond the correlated contributions of biology and family ecology, and suggested that physically harmed children had different processing styles – they were less attentive to relevant social cues, more biased to attributing hostile intent, and less likely to generate competent solutions to interpersonal problems. These processing styles significantly predicted later aggression as rated by teachers, peers, and as directly observed.

Regardless of the mechanisms involved, there is some evidence to suggest that the likelihood of future violence, aggression, delinquency, and other problems may increase with the increasing number of forms of abuse. For example, Vissing, Straus, Gelles, and Harrop (1991) found that children under the age of 18 who experienced verbal aggression and physical violence showed the highest rates of aggression, delinquency, and interpersonal problems. This being said, the independent or additive effects of different types of abuse are difficult to analyze (Haapalaso & Pokela, 1999). In Jonson-Reid's (1998) review of the relationship between youth violence and the experience of child abuse and maltreatment extant research is criticized for a lack of control, statistical rigor, various sampling issues, and measurement and definitional problems. In addition, timing of exposure, child's gender, and cultural issues are said to require further examination. Despite these limitations, the reviewed research supports the linkage between childhood exposure to violence and later aggressive and/or violent behavior, and there is a repeated association between level of violence and later aggressive behavior (i.e., dose-response effect).

A subsequent review of child-rearing and child abuse antecedents to criminality by Haapalaso and Pokela (1999) concluded that child abuse, as well as punitive, overly lax, rejecting and neglecting child-rearing methods are related to antisocial and offending behavior and increase the risk of later violence. More recently, a meta-analysis of 66 studies investigating the relationship between child maltreatment and juvenile delinquency produced an overall mean effect size of $r = .17$ (van de Ven, 2001). Physical abuse was most strongly related to violent delinquency (adjusted effect size of $r = .18$) and the more specific categorization of person-based crimes ($r = .20$). The results also showed that after adjusting for covariates, violent delinquency was related to neglect ($r = .10$), general maltreatment ($r =$

.06), and sexual abuse ($r = .04$); however, these effect sizes were of lower magnitude. More specific categorizations of delinquency revealed that person-based crimes were moderately related to sexual abuse ($r = .14$), while exposure to spousal abuse was related to violent delinquency ($r = .13$).

Finally, it is noteworthy that the Cottle et al. (2001) meta-analysis cited three variables indicative of family instability that bore modest but significant relationships to general recidivism including number of out-of-home placements ($r = .18$), history of abuse ($r = .11$), and socioeconomic status ($r = .07$). Additional studies have also documented the relationship between unstable family upbringing (e.g., abuse, neglect, poor parental relationships, parental substance abuse) and general recidivism in youths (Dembo et al., 1998; Tollet & Benda, 1999; Worling & Curwen, 2000).

1.4.1.4 *S4 Exposure to antisocial behavior in the family*

The notion that crime "runs in families" has been known for many years (Farrington et al., 2001, p. 579). In the 1950's Sheldon and Eleanor Glueck found that delinquent boys in Boston tended to have criminal fathers, mothers and siblings. In one well-known British investigation (i.e., the Cambridge Study), having a convicted parent or convicted older sibling by the tenth birthday were among the strongest predictors of juvenile convictions. A recent investigation of family criminality across three generations, found that arrests of brothers, sisters, fathers, mothers, uncles, aunts, grandfathers and grandmothers all predicted the delinquency in a sample of 1395 adolescent boys (Farrington et al., 2001). The most important relative however, was the father - arrests of the father predicted the boy's delinquency independently of all other arrested relatives (Farrington et al., 2001).

Parental criminality has also been linked with future violence. The Lipsey and Derzon (1998) meta-analysis found a significant relationship between having antisocial parents in adolescence (i.e., criminal parents, parent psychopathology, violent parents) and future violence or serious delinquency at age 15-25 ($r = .16$). In the Hawkins et al. (1998) review, several studies (10 independent investigations) evidenced a positive association between parental criminality and future violence. The magnitude of documented associations ranged from weak ($r = .01$) to strong ($r = .25$).

Exposure to family violence has also been linked with future violence among youth (Cunningham, 2000). In a study of 133, 794 non-clinical, school-going, adolescents, any self-reported experience of familial physical violence was found to be significantly associated with increased levels of violence toward self and others (Yexley et al., 2002). Multiple experiences (e.g., witnessing familial violence and being a direct victim) were more highly correlated with violent adolescent behavior. Exposure to family violence has also been shown to predict violent recidivism. Most notably, Lattimore and colleagues (1995) found that young offenders with a history of family violence, who were victims of physical abuse and neglect, were at an increased risk for violent re-arrest.

In addition to parental criminality and familial violence, exposure to antisocial attitudes in one's childhood home may also raise the probability of future violence. Data from the Seattle Social Development Project (SDDP), a prospective study of over 1000 male and female youth (followed since 1985) examining potential individual, family, school, peer, and community risk factors for violence, yielded a significant relationship between parental attitudes favorable to violence at age 10 years and violence at age 18 years (Herrenkohl et al., 2000). A similar finding was reported by Maguin and colleagues years earlier (1995). These

researchers found that children who had parents who were tolerant of violent behavior at age 10 years were more likely to report violence by age 18 years.

In summary, youth raised in families where antisocial and criminal behavior, including the use of violence, is modeled, encouraged, condoned, and/or accepted, are more likely to commit acts of violence and criminality and are at increased risk for general and violent recidivism.

1.4.2 *Dynamic Factors*

1.4.2.1 *D1 Violent lifestyle*

Commonsense dictates that a longstanding and consistent pattern of behaving violently is likely to be linked to the increased likelihood, frequency, and severity of future violence. After all, a small percentage (approximately 8%) of young offenders is responsible for a large amount of youth crime, including serious and violent offenses (OJJDP, 2001). This group has been shown to offend over a prolonged period of time and has higher rates of violent and general recidivism (e.g., Loeber & Farrington, 1998; Tolan & Gorman-Smith, 1998).

In a recent research paper examining serious and violent young offenders' decision to recidivate, "lifestyle choice" was identified as an important sentencing model (Corrado, Cohen, Glackman, and Odgers, 2003). This model purports that the decision to commit a future offense is not weighed in a rational cost-benefit manner rather, the youth has accepted a criminal lifestyle where the decision to offend preexists. That is, youths may view offending as a career choice, part of who they are, and/or what they do. In other words, decisions to recidivate are made as part of a long-term lifestyle choice. Testing of this model

revealed that the chronic offending lifestyle factor accounted for a significant portion of the variance in intention to recidivate following release from custody.

Research conducted on a large representative sample of American youth (Nofiziger & Kurtz, 2005) has determined that those who experience one form of violence, including witnessing violence in daily life, observing peer violence, and observing a physical assault, are likely to experience other forms of violence. Juveniles who are regularly in situations were they are exposed to violent events likely encounter these experiences as part of a lifestyle that simultaneously increases the risk of violent offending.

1.4.2.2 *D2 Callous and unemotional*

It has been argued by some researchers that callousness, shallow emotionality, and lack of empathy, are personality characteristics that are conducive to antisocial conduct, especially violent crime. In adults, the predictive utility of callous and unemotional (CU) traits has been one of the most clinically useful aspects of the construct of psychopathy. Although such utility has not been extensively tested in youth (Edens et al., 2001), children and adolescents with both conduct problems and CU traits, have exhibited a greater number and variety of conduct problems, including higher levels of both reactive and proactive aggression (Caputo et al., 1999; Frick et al., 2003; Frick & Loney, 1999). Furthermore, in a recent study by Frick and colleagues (2003), CU traits predicted self-reported delinquency, especially violent delinquency, independently of conduct problems at one-year follow up, in a sample of 98 males and females with a mean age of 12.43 years.

In investigations of youth with CU tendencies, deficits in empathy are also well documented (Widiger & Lynam, 1998). A current and inclusive definition of empathy provided by Cohen and Strayer (1996) is "the ability to understand and share in another's

emotional state or context" (p. 988). As noted by Jollife and Farrington (2003), this view acknowledges empathy as both a cognitive process (i.e., the ability to understand another's emotional state) and an affective capacity (i.e., the sharing of the emotional state of another). It is widely believed that those who offended, particularly those who offend violently or sexually, have low empathy. For instance, a lack of empathy is a central component of psychopathy, and empathy enhancement is a common component in correctional treatment programs. Jollife and Farrington (2003) conducted a systematic review and meta-analysis of 35 studies relating measures of cognitive ($k = 21$) and affective ($k = 14$) empathy to offending. Low cognitive empathy was strongly related to offending ($d = $ -.48, $r = $ -.24), while low affective empathy was weakly related to offending ($d = $ -.11, $r = $ -.06). The relationship between low empathy and offending was relatively strong for violent offenders ($d = $ -.39, n = 7, cognitive $d = $ -.62, affective $d = $ -.14), but relatively weak for other types of offenders. This relationship was stronger for younger people than for older people (youth cognitive effect size $d = $ -.39). Contrary to previous statements about the relationship of age to empathy and offending, this finding suggests that youth generally show more consistent relationships between empathy and offending than adults. The authors caution, however, that the results may be an artifact of SES, low intelligence, and/or executive functioning deficits. For instance, the relationship between empathy and criminal behavior in youth was attenuated considerably after controlling for SES.

Finally, in a meta-analysis of juvenile recidivism studies, Simourd and Andrews (1994) found that what they termed "minor personality variables" (i.e., empathy and moral reasoning) to be significantly related to general recidivism across 9 studies in male ($r = .22$) and female ($r = .18$) youth. Similarly, Jung and Rawana (1999) found that young offender

recidivists scored higher than non-recidivists on the Personality/behavior component of the YLS/CMI. It should be noted that both the YLS/CMI and the PCL-YV have items pertaining to callousness/lack of empathy (i.e., "Callous, little concern for others" and "Callous/Lack of Empathy", respectively). When rating the PCL-YV item, the manual directs the rater to look for evidence of excessive violence and/or early mistreatment of siblings or animals. Cruelty to animals is part of a hypothesized triad of behaviors (in addition to bedwetting and firesetting) that have long been thought to be predictive of interpersonal violence and as such, it will be addressed briefly here.

The relationship between animal abuse and interpersonal aggression was first identified by Pinel in 1809 (Ascione, 2001). In current times, media reports, information pamphlets, and behavioral checklists have routinely emphasized a link between animal cruelty and interpersonal violence (Miller, 2001). A comprehensive review of the literature conducted by Miller in 2001 found that several studies have reported a significant relationship between childhood cruelty toward animals and violence toward people. The reviewed research suggests that the association is strongest for those who exhibit repeated, abusive acts to socially valued animals (i.e., pets). A recent study of a nonclinical sample of over 2000 youth in Alexandria, Egypt (Youssef, Attia, and Kamel, 1999), 9.6% of those reporting that they had engaged in violent behavior (i.e., acts of physical force that inflicted harm or physical injury) reported being cruel to animals, whereas only 2.1% of nonviolent youth reported cruelty. Thus, cruelty-toward-animals significantly predicted group membership. This being said, it should be remembered that different practices with animals are condoned by different cultures (Ascione, 1993). In a Canadian sample of 243 firesetters residing in a maximum-security psychiatric facility, Rice and Harris (1996) found that a

childhood history of cruelty toward animals coded from file information, predicted violent offense recidivism and nonviolent offense recidivism. Taken together, these studies suggest that animal abuse may have predictive value, especially for violent behavior.

Finally, in the first study (Flight & Forth, 2007) to examine psychopathy, attachment, empathy, and motives for violence in an adolescent sample (51 male adolescents serving custodial dispositions for violent offenses), PCL-YV total scores were related to both instrumental (i.e., planned acts of violence carried out in an attempt to serve some self-gratifying goal) and reactive violence (i.e., violence in reaction to an interpersonal dispute or conflict, usually spur of the moment, and often associated with heightened emotional arousal). However, largest mean differences in PCL:YV total scores were observed between those classified as "never instrumental" and "frequently instrumental", with the latter scoring higher on psychopathy. Correlational analyses further revealed that the observed difference could be attributed to the interpersonal and affective features of psychopathy (e.g., lack of remorse, shallow emotions, failing to take responsibility for actions), as opposed to the behavioral and antisocial features. Limitations of this study include the small sample size and relatively high prevalence rate of instrumentally violent youth (75%), which may be related to method of classification.

1.4.2.3 *D3 Criminal attitudes*

It is generally accepted that attitudes have an important influence on behavior. Several researchers have documented a positive association between pro-criminal and pro-violent attitudes and actual violent behavior in youth (e.g., Guerra & Slaby, 1990; Slaby & Guerra, 1988; Tolan, Guerra, & Kendall, 1995).

With regards to pro-criminal attitudes, the Simourd and Andrews (1994) meta-analysis found attitudes to be particularly robust predictor of general re-offending for both male ($r = .40$) and female ($r = .39$) youth across 53 studies. Individual studies published since this meta-analysis have arrived at similar results (Jung & Rawana, 1999; Hoge et al., 1996). For instance, Jung and Rawana (1999) found that the largest difference between recidivating and non-recidivating youth drawn from the client pool of two major Canadian probation offices, across eight risk/need factors, was in the domain of Antisocial attitudes/orientations. The available literature has also documented a substantive relationship between criminal attitudes and violent behavior in youths. For example, in a longitudinal study of 405 male young offenders, Farrington (1989) found hostility towards police at age 14-16 to be predictive of self-reported violence at ages 16-18 ($r = .20$) and 32 ($r = .06$), as well as official violent convictions between ages 10 and 32 ($r = .23$).

Shields and Simourd (1991) found that institutionally aggressive youth had significantly higher scores on an actuarial measure of criminal attitudes (as assessed by the YO-LSI), than non-institutionally aggressive youth. Perhaps more importantly, a comprehensive review of the literature conducted by Hawkins and colleagues (1998) found that criminogenic attitudes and beliefs (e.g., deviant attitudes, dishonesty, hostility to police) were predictive of self-reported and official records of violence.

Pro-violent attitudes have also been associated with violent behavior. Maguin (1995) observed a significant relationship ($r = .15$) between violent attitudes and self-reported violence at age 18 and recent studies employing community samples have obtained similar results. Cornell and Loper (1998) used a school survey to assess attitudes toward aggression and their relationship to high-risk behaviors in a sample of over ten thousand 7th, 9th, and

11th-grade students. Students who endorsed two items which assessed aggressive beliefs (i.e., "If someone threatens you, it is okay to hit that person" and "It feels good when I hit someone") were more likely, than those who did not, to report engaging in aggressive behaviors such as fighting and carrying a weapon.

In a prospective study of 403 middle school students (McConville & Cornell, 2003), aggressive attitudes were correlated with four outcome criteria for aggressive behavior: student self-report of peer aggression, peer and teacher nominations of bullying, and school discipline referrals measured concurrently and prospectively. Significant correlations ranged from .09 to .37. Receiver operating characteristic (ROC) analyses generated area under the curve (AUC) values ranging from .59 to .75. Thus, students who had positive attitudes toward aggressive behavior were more likely to report hitting and kicking, pushing and shoving, threatening, bullying, and fighting their classmates both at the time aggressive attitudes were assessed, and perhaps more importantly, 7 months later.

Findings from the Lehigh Longitudinal Study (Herrenkohl, Huang, Tajima, & Whitney, 2003), a prospective study of 457 children followed from preschool into adolescence, would further indicate that violent attitudes had a very strong positive relation ($r = .57$) with self-reported violence. However, this effect was mediated through involvement with criminal peers. Stated differently, violent attitudes predict violent behavior indirectly through involvement with antisocial peer networks. In sum, violent attitudes increase violent behaviors both directly, and indirectly, through the association with criminal peers.

Researchers now believe that the ability to differentiate violent attitudes may have important applications (Funk et al., 1999; Tate, Reppucci, & Mulvey, 1995). For instance, Funk and colleagues (1999) have differentiated pro-violence attitudes into those which are

primarily "reactive" (e.g., "If a person hits you, you should hit them back") and those which appear to be more "culturally ingrained" (e.g., "It is okay to use violence to get what you want"; "People who use violence get respect"). Reactive attitudes were related to an individual's response to an immediate threat and indicate "having violent behaviors in one's repertoire, being willing to act in a violent manner, and endorsing the actual choice of a violent response", whereas cultural attitudes are thought to reflect the conviction that "the world is a dangerous place where the best way to ensure survival is to be vigilant and ever prepared to take the offensive" (p. 1129). Thus, interventions targeting reactive attitudes may focus on the individual's readiness to choose violence, while interventions targeting cultural attitudes may be related to the youth's adaptive search for the predictability of environmental threat. As such, cultural or core attitudes may be more resistant to change.

Outcome expectancies, or beliefs about the benefits or consequences of behavior, are another way in which pro-violent attitudes affect behavior (McConville & Cornell, 2003). For example, in a sample of highly aggressive, incarcerated, adolescent boys ($n = 110$), victimization by severe violence was related to approval of aggression as a social response, problems with the interpretation of social cues, and maladaptive social goals, while witnessing severe violence was related to perceived positive outcomes for the use of aggression (Shahinfar, Kupersmidt, & Matza, 2001). Generally speaking, youth who believe that positive outcomes will result from aggressive behavior are more likely to commit aggressive acts (Cuddy & Frame, 1991). For instance, Lochman and Dodge (1994) found that aggressive and violent cohorts had higher expectations that aggressive behavior would terminate aversive behavior by others than non-aggressive youth.

Finally, recent research suggests that the relationship between criminal attitudes and delinquent behavior, including violence, may change with age. In three samples of preadolescent and adolescent boys, Zhang et al. (1997) found that attitudes favorable to minor aggression and violence increased with age and that this association tended to become stronger with age. In addition, the stability of attitudes favorable toward aggression or violence increased with age and was higher for favorable attitude toward violence than for favorable attitude toward minor aggression. Furthermore, their results showed mutual predictability between attitudes and behavior.

In a study of over 2000 Dutch youths aged 12 - 24 years, the age-crime curve (i.e., an increase in delinquent activity in early adolescence (12-14), high rate of criminal activity in mid-adolescence (15-17); decline of criminal activity in late adolescence (18-21), and a more stable level of delinquent activity in adulthood) was more pronounced for youths with a permissive attitude toward violence (i.e., lack of concern about the damage done to others and tolerance for violence behavior). Thus, adolescents with a permissive attitude toward violence displayed considerable differences in delinquent activities with age, whereas adolescents with other attitudes (i.e., non-permissive, permissive toward material damage) showed slighter differences (Landsheer & Hart, 1999).

1.4.2.4 *D4 Negative attitude toward education*

Research generally supports the hypothesis that bonding to school is a protective factor against crime and violence (Catalano & Hawkins, 1996). A lack of commitment to school as evidenced by such things as truancy, not completing assignments, difficulty in maintaining passing grades, and viewing education as unimportant has been linked to violence and delinquency. In the Lipsey and Derzon (1998) meta-analysis, poor school attitude and

performance among 12-14 year-olds was predictive of serious violence or delinquency later in life ($r = .19$), including dropping out of school, having a low interest in education, low school achievement, attending a poor quality school, and truancy. Moreover, Hawkins et al. (1998) found that academic failure, low bonding to school (commitment/ attachment), truancy and early school leaving, and school transitions were predictive of several violent recidivism criteria including both self-reported and official convictions for violence. Furthermore, individual studies have shown that youth who quit school are at higher risk for violent re-arrest (Lattimore et al., 1995) and that institutionally aggressive youth have greater employment/education concerns (Shields & Simourd, 1991). A recent analysis of the post-release offending patterns (focusing on the first three years following release) of two cohorts of high-risk juvenile offenders ($n = 3586$) paroled by the California Youth Authority, revealed that being a high school dropout increases the expected arrest rate and variance by 5 percent, holding all other variables constant (Lattimore et al., 2004).

Longitudinal studies of children and youth provide additional support for the relationship between weak commitment or bonding to the academic environment and future violence. Data from a 5-year longitudinal self-report survey of more than 4300 high school seniors and dropouts from California and Oregon showed that adolescents who had shifted from one elementary school to another and had obtained poor grades in Grade 7 were more likely to engage in violent behavior 5 years later (Ellickson & McGuigan, 2000). In a Canadian survey of youth aged 12 to 15 years (National Longitudinal Survey of Children and Youth; Latimer et al., 2003) negative school attachment was one of five core correlates of self-reported delinquency for both male and female youth. The strongest correlate of violent offending ($n = 1368$) was negative school behavior. Findings from the Seattle Social

Development Project (SDDP), a prospective study of over 1000 male and female youth followed since 1985, indicate that low academic performance at age 14 and 16 years, as well as school transitions at age 16 years, are associated with future antisocial behavior (with Odds Ratios (ORs) around 2.0; Herrenkohl et al., 2000) while youths who bonded to school at age 15 appeared to be protected from later violence (OR = .37, probability of violence = 20 percent; Herrenkohl et al., 2003). In the Lehigh Longitudinal Study, a prospective study of 457 children followed from preschool into adolescence, a school commitment variable which addressed the time a youth spent studying, the importance of school to the youth, and the quality of her/his work, had a very strong inverse relation with self-reported violence ($r = -.62$). The effects of this variable however, were mediated by involvement with antisocial peers (Herrenkohl, Huang, Tajima, & Whitney, 2003).

Poor school achievement has also been linked to general recidivism in youths (Funk, 1999; Katsiyannis & Archwamenty, 1997; Archwamenty & Katsiyannis, 1998; Grenier & Roundtree, 1987; Niarhos & Routh, 1992; Jung & Rawana, 1999). Simourd and Andrews (1994) found educational difficulties (e.g., poor grades/dropout) to be related to general re-offending in both male ($r = .23$) and female ($r = .24$) youths across 34 studies. More recently, Cottle et al. (2001) examined the relationship between several indices of school functioning and recidivism. While standardized academic achievement score was inversely related to recidivism ($r = -.15$), report of school achievement was not ($r = -.03$).

1.4.2.5 *D5 Antisocial peers*

Research has established strong links between antisocial peer factors and criminal recidivism in adult and adolescent samples. Lipsey and Derzon (1998) found that antisocial peer factors (i.e., antisocial peers, peer criminality, and peer normlessness) were among the

strongest consistent predictors of future violence and delinquency ($r = .37$) and that the strength of this relationship increases when peer involvement is measured more proximately to the actual occurrence of violence. Hawkins and colleagues (1998) reported that sibling delinquency, peer delinquency (exposure to antisocial peers), and gang membership were significantly related to self-reported and official records of violence.

More recently, data gathered on a New Zealand birth cohort ($n = 1265$) found clear and consistent trends for increasing affiliations with deviant peers to be associated with increasing rates of violent crime at four age intervals (14-15; 15-16; 17-18; 20-21) for both genders, even after controlling for fixed factors and time dynamic covariates. The strength of the association however, reduces with age. For instance, those with high deviant peer affiliations at age 14-15 years are eight times more likely to commit violent crimes than those with low deviant peer affiliations, but by 17-18 this difference reduces to approximately four. Results are consistent with a casual model in which affiliation with deviant peers increases individual susceptibility to engage in violent crime, with younger individuals showing the greatest susceptibility. Furthermore, in a sample of French Canadian Caucasian boys from poor neighborhoods in Montreal (i.e., the Montreal Longitudinal Experimental Study), individuals who affiliated with delinquent groups during preadolescence (i.e., childhood affiliation) or later during adolescence (i.e., adolescence affiliation) committed, as a group, more violent acts than those who never or who temporarily had this kind of affiliation. The childhood affiliation group, having an earlier and more prolonged involvement with delinquents, clearly showed the highest rates (Lacourse et al., 2003). Finally, data from the Seattle Social Development Project indicates that teacher-rated aggressive youths who at age 15 had the opportunity to associate with antisocial peers during adolescence, and had regular

involvement with those peers, were more than twice at risk for later violence (OR = 2.48 and 3.25; Herrenkohl et al., 2003). Together, these results imply that early affiliation to delinquent groups is an important factor in understanding the frequency and stability of violent offending during adolescence (Lacourse et al., 2003).

Negative peer associations have also been found to be a strong and consistent predictor of general recidivism in juveniles (Jung & Rawana, 1999; Hoge et al., 1994; Hoge et al., 1996; Funk, 1999; Grenier & Roundtree, 1997; Tollet & Benda, 1999). The Cottle et al. (2001) meta-analysis also found delinquent peers were a significant predictor of general recidivism ($r = .20$). Similar findings were obtained in the earlier Simourd and Andrews (1994) meta-analysis regarding a combined antisocial attitudes/peers variable. On the flip side, the random design studies described in Chamberlain and Reid (1998) demonstrate that reducing contact with deviant peers resulted in long-term reductions in police arrest and substance use. Such findings are consistent with the idea that early and intense involvement with deviant peers may function as a causal mechanism for antisocial behavior.

Although affiliation with antisocial peers is strongly correlated with criminal and violent behavior, gang membership has been found to make a unique contribution above and beyond the influence of antisocial peers. Gang affiliation has been shown to be a strong predictor of general recidivism in juvenile offenders (Archwamenty & Katsiyannis, 1997; Benda et al., 2001; Katsiyannis & Archwamenty, 1997; Tollet & Benda, 1999) and the association between gang membership and violent behavior has been well documented since 1927 (Thrasher, 1963). In the United States, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) Program of Research on Causes and Correlates of Juvenile Delinquency, consisting of three longitudinal studies in Denver, Colorado; Rochester, New York; and

Pittsburgh, Pennsylvania, has produced important information on serious, violent, and chronic juvenile careers (Howell, 1995). For instance, levels of involvement in violence were found to be much higher during a period of gang membership, than during the periods before and after gang membership. More specifically, gang members incurred 3 to 7 times as many serious and violent delinquent acts as non-gang youth across all three research sites (Howell, 1998). In the Rochester sample ($N > 400$ males), gang membership was found to be strongly predictive of self-reported violence over 1 year ($r = .26$), 2 years ($r = .34$), and 3 years ($r = .32$) follow-up (Thornberry, 1998). It was also noted that the magnitude of the coefficients were comparable to the findings obtained for other strong predictors including prior violence and delinquent peers at year one. However, over the 3-year follow-up period, the gang membership variable had the largest contribution to the prediction of self-reported violence out of all variables. From these findings, Thornberry concluded that gangs "differ substantially from simple delinquent peer groups" (1998, p. 165). Additional studies have shown that male and female gang members are more likely to report a higher rate of several high risk behaviors including carrying a weapon and physical fights/attacks (Dukes, Martinez, & Stein, 1997; Harper & Robinson, 1999).

At present there is significant disagreement among researchers as to the appropriate conceptual and operational definitions of gang membership (Bjerregaard, 2002). One solution is to allow individuals to identify themselves as gang members without reference to an established definition. In a 2002 investigation by Bjerregaard, persons who were self-identified members of an organized gang were more likely to engage in all types of self-reported delinquent activities, including robbery, assault, and participation in gang fights. Organized gang members were also more involved with weapons and weapons-related

activities. Nevertheless, the fact remains that self-reported gang membership is an exceptional predictor of violent behavior. In a recent large scale study of incarcerated male and female youth in Texas ((N = 1 083) juveniles who reported membership in a gang were 2.5 more likely to be violent offenders (Blackburn et al., 2007). This study is unusual in that female youth were included in the sample.

To date, few studies have specifically examined how peer relationships influence violence and delinquency among girls. One notable exception is Silverman and Caldwell (2008) who found that high levels of peer association and extrinsic rewards from peer relationships best predicted violence across four ethnic groups of adjudicated female offenders (Caucasian, African American, Hispanic, and biracial/multiracial).

1.4.2.6 *D6 Interpersonal aggression*

There is some evidence to suggest that adolescents who use aggressive behaviors consistently or extensively in interpersonal interactions are more likely to engage in violent behavior, to be charged or convicted of a violent offense, and to violently recidivate upon release from custody. The Lipsey and Derzon (1998) meta-analysis for example, found that various indicators of interpersonally aggressive behavior among 12-14 year-olds were predictive of future violence or serious delinquency at ages 15-25, including aggression (e.g., disruptive behavior towards others, objects and verbal aggression) (r = .19) and problem behavior (e.g., antisocial behavior, aggressively inclined, antiestablishment, poor behavior rating, problem behavior, temper tantrums, undesirable temperament) (r = .12). The Hawkins et al. review (1998) reported a positive relationship between interpersonal aggression in childhood (both teacher and peer-rated) and future official violent offenses/convictions, self and peer-rated violence. One study from the review included Farrington's (1989) longitudinal

study of over 400 male young offenders found that high aggressiveness at age 12-14 was associated with self-reported violence at age 16-18 ($r = .25$), self-reported violence at age 32 ($r = .15$), and violent crime convictions between age 10 and 32 ($r = .22$). Another study found that youths who had a record of aggression and threats while incarcerated were significantly more likely to commit a new violence offense while on parole (Lattimore et al., 2005). And an investigation by Tinklenberg, Steiner, Huckaby, and Tinklenberg (1996) found that youth scoring low on "restraint" (i.e., poor capacity to regulate impulses including suppressing aggressive behavior and showing consideration to others) had higher re-arrest rates of serious felony and murder than high restraint youth.

More recently, Nagin and Tremblay (1999) addressed the question of whether childhood physical aggression is a distinct risk factor for later violence among a sample of high-risk boys from Montreal. They found that, with chronic opposition and hyperactivity controlled for, chronic physical aggression in childhood was a distinct predictor of the most serious and violent delinquency in adolescence. Thus, physical aggression appears to be a distinct risk factor for later violent offending independent of other disruptive behavior problems. Building on these findings, further work by these researchers (Brame, Nagin, & Tremblay, 2001) revealed that boys with higher childhood physical aggression trajectories are far more likely to transition to a higher-level adolescent aggression trajectory than boys from lower childhood physical aggression trajectories. Indeed, little evidence was found for a "late onset" of high-level physical aggression. A recent study (Broidy et al., 2003) designed to assess the robustness of such findings both cross-nationally and across sex, used data from 6 sites (including Montreal) and three countries to examine the developmental course of physical aggression in childhood and analyze its linkage to violent and nonviolent offending

outcomes in adolescence. The results confirmed that for boys, chronic physical aggression during the elementary school years increases the risk for continued physical violence as well as other nonviolent forms of delinquency during adolescence. However, no clear linkage was observed between childhood physical aggression and adolescent offending among female samples. Although trajectory models of physical aggression for both samples have notable similarities (i.e., developmental pathways of physical aggression follow individual-level patterns of stability or decline coupled with a high degree of stability in relative position across individuals), the linkage between childhood patterns of physical aggression and later offending was less patterned among girls, varying across sites and outcomes. Finally, when the correlated effects of other disruptive behaviors were controlled for, opposition and hyperactivity was not predictive of violent delinquency in any of the data sets. Thus, across multiple sites, physical aggression in childhood is more consistently and robustly related to later violent delinquency than other disruptive behavior problems.

Moreover, aggression that is proactive (i.e., deliberate and instrumental) in nature has emerged as an early risk factor for later "predatory" violent behavior in adolescent boys (Vitaro, 1997). For example, in a study comparing the links of proactive and reactive aggression at 13 years of age to delinquency-related and dating violence at ages 16 and 17 (Brendgen et al., 2001), proactive aggression was related to later delinquency-related violence for 525 Caucasian boys, while reactive aggression was not related to delinquency-related violence once proactive aggression was controlled. In contrast, reactive aggression was uniquely predictive of later violence against a dating partner whereas proactive aggression was not.

Finally, it should be noted that an explosion of studies over the last two decades has investigated gender differences in aggression. Converging evidence now suggests that males and females may aggress in different ways – males use physical aggression more than females, whereas females employ indirect (i.e., covert; Bjorkqvist and colleagues) or relational (i.e., manipulation of peer relations; Crick and colleagues) methods of aggression more than males. There is considerably less support for age differences in aggression, including the idea that methods of aggression change across the lifespan, with more sophisticated forms (i.e., indirect/relational methods) replacing physical forms with age (Vaillancourt et al., 2003). Nevertheless, the relationship between indirect/relational aggression and violent behavior warrants further examination.

1.4.2.7 *D7 Poor emotional control*

Classic theories of aggression have long included emotional variables, such as the association between frustration and aggression and the contributions of anger and rage. Megargee (1966), for instance, postulated the idea of *overcontrolled hostility*, the notion that excessive emotional control, such as the suppression of anger and hostility, increases one's risk for explosive violence. Numerous researchers have also found associations between emotional variables, including frustration, anger, and emotional dysregulation, and violent behavior (Loeber & Hay, 1997). The MacArthur Risk Assessment Study (Monahan et al., 2001: Monahan, 2002) for example, assessed over one thousand acute civil patients at three mental health facilities in different American states on a wide variety of variables believed to be related to the occurrence of violence and found that a lack of anger control was significantly related to future violence. Individuals with high scores on the Novaco Anger Scale at hospitalization were twice as likely as those with low scores to engage in violent acts

after discharge. Perhaps it is unsurprising then that a recent meta-analysis examining the treatment of youth in conflict with the law, identified anger management as the most encouraging treatment target for reducing recidivism (Latimer et al., 2003). The 10 studies that fit the selection criteria and measured improvements in anger generated a mean effect size of + 0.26, which was the highest effect reported in this meta-analysis. In a longitudinal study of a representative birth cohort of men (Henry, Caspi, Moffit, & Silva, 1996), the only variable that discriminated between those convicted of violent and non-violent offenses by the age of 18 was a factor labeled childhood "lack of control" characterized by elements such as emotional lability, restlessness, impulsiveness, and negativism.

With respect to youth in particular, a sample of female nonviolent offenders ($n = 49$) was found to be more delinquently oriented than violent female offenders ($n = 45$), as assessed by a self-report juvenile personality measure (Jesness Personality Inventory [Jesness]) (Allen et al., 2003). Allen et al. (2003) further speculated that variables such as "emotional control" would be more prominent for violent females. They make reference to Megargee's (1966) overcontrolled hostility idea and suggest that female youths lash out violently in response to emotional stress and perceived conflict, but that they are not otherwise delinquent in orientation. These are "crime of passion" instances in which the victim is often somebody with whom the girl has close emotional ties. In partial support of the overcontrolled hostility idea, Salekin et al. (2002), also observed higher than average MMPI-A Overcontrolled Hostility (O-H) scale scores in adolescent murderers.

Howell, Reddon, and Enns (1997) conducted a Canadian study of 115 adolescent offenders consistently admitted to an inpatient psychiatric unit for a court-ordered assessment. Participants completed an instrument designed to assess the self-report

importance of various antecedents to a past offense (i.e., High Risk Situations Questionnaire for Young Offenders; HRSQ-YO). Analyses revealed three conceptually meaningful factors that discriminated among violent and nonviolent youths. Specifically, Delinquency factors scores were significantly higher for property offenses, Aggressivity factor scores were significantly higher for violent offenses, but no differences between the two offense types emerged for Negative affectivity factor scores. Irrespective of these null findings, negative emotions may be important in the occurrence of violent offenses and have been heavily implicated in many relapse prevention programs. Moreover, using data from the Pittsburgh Youth Study (PYS), Robins, John, Caspi, Moffit, and Stouthamer-Loeber (1996) and Robins, John, and Caspi (1998) found three categorical types of adolescent personality structures: Resilients (i.e., well-adjusted, adaptive, flexible), Overcontrollers (i.e., introverted, agreeable, inhibited), and Undercontrollers (i.e., extroverted, disagreeable, impulsive, inappropriate). Undercontrollers were the most likely to have externalizing problems (e.g., disruptive, aggressive behavior) and were also the most likely of all boys to have combined externalizing and internalizing problems.

Finally, poor emotional control has been linked to general recidivism in some investigations among youthful and adult offenders (e.g., Andrews & Bonta, 1998; Robinson, Porporino, and Beal, 1998, Zamble & Quinsey, 1997).

1.4.2.8 *D8 Violence during institutionalization*

Institutional adjustment, and more specifically misconduct, has been shown to predict recidivism in young offenders (e.g., Duncan et al., 1995). For example, Lattimore and colleagues (2004) analyzed the post-release offending patterns (focusing on the first 3 years following post release) of two cohorts of juvenile offenders (n = 3586) paroled by the

California Youth Authority (CYA). The CYA is described as the "last stop" for juvenile offenders in California and therefore houses the most serious offenders in the state. Results showed an increased risk of frequent arrests for male parolees who had a documented history of aggression and violence in institutional settings. Holding all other variables constant, a one unit increase in institutional infraction rate increased the expected post-release arrest rate and variance by 7%. Greater arrest frequencies were also observed for whom there was evidence of institutional gang activity. Institutional gang involvement increased the expected arrest rate and variance by approximately 9%. Furthermore, being involved in violence while committed increased the expected arrest rate by 14% and elevated the expected count of arrests by .08. In an earlier investigation, Lattimore and associates (1995) found that a record of aggression and threats while incarcerated, and a high rate of institutional infractions, were predictive of violent re-arrest in a sample of male young offenders.

1.4.2.9 *D9 Weapon use*

The possession and use of weapons has been associated with increased risk for violence among young offenders. In a large sample of urban adolescent males ($N = 420$), Beyers and colleagues (2001) found that one of the best predictors of repeated violence for adolescents living in low socio-economic status (SES) neighborhoods was having carried a concealed weapon by the age of 13.5 years. (This relationship was not observed for youth living in high SES neighborhoods.) A similar relationship was observed by Tollet and Benda (1999) regarding general recidivism. In this study, odds of return to a Serious Offender Program operated by the Arkansas Division of Youth Services (DYS) were increased by more than three times (3.35) by carrying a weapon; second only to having prior commitments (OR = 13.5). Although studies have shown that adolescent girls do not carry weapons to the same

extent as adolescent boys (Ellickson, Saner, & McGuigan, 1997; Valois, McKeown, Garrison, & Vincent, 1995), when girls do carry a weapon they tend to use knives (Loper & Cornell, 1996), and are more likely to get into a physical fight (Durant et al., 1995). For adolescents of both genders, "arming" appears to escalate to the use of lethal weapons. For instance, a follow-up study of a school population in an urban setting indicated that the carrying of a stick or a knife was significantly associated with the subsequent carrying of a gun in later years (Arria et al., 1995). Unfortunately, little has been documented about actual weapon use and violent recidivism among youth. Notably, Langstrom and Grann (2001) observed a significant relationship between weapon use and sexual recidivism in a sample of adolescent sex offenders.

1.4.2.10 *D10 Lack of insight into cause of violence*

An additional risk factor for future violence may be a lack of insight into the origin of violence. For instance, the youth may not understand the precipitants of violence and/or may be unable to differentiate low-risk situations from high risk situations. Although there is some support for this risk factor in the adult literature (e.g., Strand, Belfrage, Fransson, & Levander, 1999) with "Lack of Insight" included as a "Clinical" risk factor on the Historical Clinical Risk-20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997), research specific to violent young offenders is needed. Although a meta-analysis of 40 relapse prevention models applied within offender treatment conducted by Dowden, Antonowicz, and Andrews (2003), revealed that certain elements of the model yielded stronger effects than others. Components concerned with recognizing the offense-chain (eta = .40), identifying high-risk situations (eta = .21), and role-playing these situations (eta = .51), were found to be effective for evoking mean reductions in future criminal behavior and yielded significantly larger treatment gains

for young offender populations (eta = .34). These data would suggest that insight-oriented relapse prevention activities may reduce recidivism and promote desistence in violent young offenders. Indeed, a qualitative study of six high-risk chronic and violent offenders who had not recidivated revealed that the decision to desist was made after participants had gained insight into the negative influences of their antisocial lifestyle (Haggard, Grumpert, & Grann, 2001).

1.4.2.11 *D11 Mental disorder*

Psychopathology is a highly prominent and relevant concern among young offenders and females in particular. In the female delinquent population, high rates of psychopathology have been reported (Kataoka et al., 2001; Kosky, Sawyer, & Gowland, 1990; Pliszka, Sherman, Barrow, & Irick, 2000; Richards, 1996; Teplin et al., 2002; Ulzen & Hamilton, 1998; Wood, Foy, Goguen, Pynoos, & James, 2002) and females have significantly higher odds than males of having a psychiatric diagnosis (Teplin et al., 2002).

For example, Dixon, Howie, and Starling (2004) examined prevalence rates of psychopathology in 100 incarcerated female juvenile offenders in Australia in comparison to a matched control group. Rates of psychopathology were higher for offenders than non-offenders with particularly high levels of depression and posttraumatic stress disorder. The number of psychiatric diagnoses was the most significant factor associated with offender status – 78% met lifetime criteria for 3 or more diagnoses. Mental health status was the most significant factor associated with offending behavior, while not living with both biological parents, being Aboriginal, and experiencing multiple traumas were also associated with a greater chance of incarceration. High rates of suicide attempts and the frequent use of violent methods were also documented in this study.

Rates of anxiety and post-traumatic stress disorders also are also elevated in violent young offenders. For some youth, part of the pattern of stress reactions may include a heightened sensitivity to potential threat, which can in turn involve the risk of a young person acting explosively or unexpectedly (Bailey, 2002). These syndromes may also increase a youth's risk for general criminality. For instance, in a sample of 95 juvenile defenders various forms of emotional disturbance (e.g., suicide ideation, angry/irritable, fighting, and anxiety subscales) as measured by the nine subscales of the MAYSI, were related to general recidivism.

The extant literature has also suggested that affective disorders may play some role in youth violence, particularly for females. Depression in adolescence can manifest itself as anger, which in turn is correlated with aggression (Pliszka et al., 2000). It has been demonstrated that youth exhibiting conduct problems are at risk for co-occurring depression and youth exhibiting depression are at risk for co-occurring conduct problems (e.g., Capaldi 1991; 1992; Lahey et al., 2002). Moreover, Loeber et al (1994) found that stable depressed mood was associated with boys' escalation of serious and varied kinds of delinquency at ages 10-12.5 and 13.5 to 15.5 years. In a more recent and sophisticated investigation of depressed mood and delinquency in a longitudinal sample of approximately 500 adolescent males aged 13.5-17.5, Beyers and Loeber (2003) found that depressed mood had a more robust effect on concurrent variety of delinquent acts over time than delinquency variety had on depressed mood trajectories, even after controlling for common risk factors. On average the two were positively related however, the magnitude varied across adolescents, and in a minority of adolescents the problems were negatively related.

Although studies investigating the comorbidity of self-harm and suicidal ideation with physical aggression in adolescents are few in number, extant findings suggest that there may be a pathway linking self-harm to physical harm directed towards others in adolescent girls (Leschied et al., 2001). For instance, Grosz et al. (1994) examined the relationship of various psychological and historical variables to previous violence among hospitalized youth. Youth with a history of assaultive behavior ($n = 40$) were compared to youth without a history of assaultive behavior ($n = 36$). Violent youth had higher rates of suicide attempts, greater family suicide history, scored higher on a psychometric measure of suicide risk (Suicide Risk Scale), and had a higher base rate of borderline personality disorder (50% vs. 27.8% for nonviolent youth).

Despite extensive research findings in adults, there is very little literature in the specific field of violence and psychosis in adolescence, perhaps given that psychotic disorders, however, occur only infrequently (Clare et al, 2000). In a recent retrospective case note study of 39 adolescents diagnosed with psychotic disorders and admitted to psychiatric units in England between 1990 and 1998, none of the identified psychopathological variables discriminated between criminally violent and non-violent youth (Clare, Bailey, & Clark, 2000). In fact, a previous criminal history had the strongest association with criminal violence. The above being said, a better-perceived response to medication was observed in non-violent youth.

The results of this investigation are similar to those obtained by a meta-analysis conducted by Bonta, Law, and Hanson in 1998 to examine whether the predictors of recidivism for mentally disordered offenders are different from the predictors for nondisordered offenders. Effect sizes were calculated for 35 predictors of general recidivism

and 27 predictors of violent recidivism drawn from 64 unique samples with participants ranging from 15.5-51.6 years of age. Overall, the results showed that the major predictors of recidivism were the same for mentally disordered offenders as for nondisordered offenders. Criminal history variables were the best predictors, while clinical variables showed the smallest effect sizes. For example, a mean weighted effect size of -.04 was obtained for the relationship between psychosis and violent recidivism.

However, there may be an increased risk of violence to others when the youth is experiencing active symptoms (especially if he or she is misusing substances), including delusions that incorporate named persons known to the individual, non-delusional suspiciousness, persecutory beliefs, command hallucinations involving violent acts, and/or violent thoughts (Taylor & Gunn, 1999; Monahan, 2002). Protective factors, on the other hand, include response to physical and psychosocial treatments, treatment compliance, and good insight into the mental disorder (Taylor & Gunn, 1999).

Overlap between violent behavior in particular and psychotic disorder has been studied in two samples of juveniles only (Clare, Bailey, & Clark, 2000; Inamdar, Lewis, Siomopoulos, Shanok, & Lamela, 1982), both by means of a retrospective chart design in a hospitalized population. The most recent study (Clare et al., 2000) failed to find an association between psychotic symptomatology and criminal violent behavior. A major limitation of these studies is their reliance on psychiatric inpatients, which may conceal the relationship between violence and psychosis because of the high prevalence of violence in this group. Only three studies reported on the presence of schizophrenia in adolescent delinquents (Hollander & Turner, 1985; McManus et al., 1984; Richards, 1996), however, no

adolescent study focused on violent behavior in particular. The possible relationship between violent behavior and the prodromi of schizophrenia remains unexplored (Vermeiren, 2003).

Some research has also examined the association between personality pathology in youth and violent and delinquent behavior. For instance, Johnson, Cohen, Smailes, Kasen, Oldham, Skodol, and Brook (2000) examined the association between personality disorders and violent behavior among adolescents in the community using data from a longitudinal prospective study ($n = 717$). Symptoms of paranoid, narcissistic, or passive-aggressive personality disorder during adolescence were uniquely associated with an increase in risk of committing any violent act against others after covariates were controlled (e.g., age, sex, co-occurring Axis I and Axis II disorders, parental psychopathology, and socioeconomic status).

In summary, it has been concluded that while the contribution of serious mental illness to violence in young adults remains small, is may be slightly greater than it is in adults (Arseneault et al., 2000). In addition, those who abuse substances and/or have not received treatment for their mental disorder may be at higher risk of becoming violent. It is important to note, however, that not all studies or research reviews have observed a link between mental disorder and antisocial behavior in youths. For instance, in their review, Hawkins et al. (1998) found that indicators of psychological distress, such as anxiety, nervousness, withdrawal, and worrying, had generally weak and mostly negative relationships to violence, with correlations ranging from -.09 to .04. Available research has also documented weak and non-significant relationships between mental health concerns and general re-offending in youths (Cottle et al., 2001; Simourd & Andrews, 1994).

1.4.2.12 *D12 Substance abuse*

As Welte, Zhang, and Wieczorek (2001) have pointed out, the relationship between substance abuse and criminal offending has "bedeviled" researchers (p. 416). The relationship is dynamic and reciprocal, rather than unidirectional, and may depend on the type of offender and the type of offense. As proposed by Goldstein (1985), possible connections between substance abuse and crime include: 1) Psycho-pharmacological violence: short-term and long-term effects of the drug cause proneness to criminal behavior; 2) Economically compulsive violence: crimes are committed to obtain money in order to purchase substances; 3) Systemic violence: violent crime are among those involved with the drug trade.

Heavy drinking has been positively associated with violent offending in young males (Zhang, Wieczorek, & Welte, 1997), and has also been shown to influence the severity of the criminal act (Wieczorek & Welte, 1994). Surprisingly, an additional investigation by the same researchers found no indication of a causal relationship between substance use and violent crime in the same one-year period (Welte, Zhang, & Wieczorek, 2001). The authors note that this investigation employed synchronous analyses and was not dealing with acute effects of substance use on behavior. Thus, although substance use may influence the severity of the act it does not cause violent acts that would not have occurred otherwise. This being said, violent offending may have other connections with drugs, such as trafficking (Thornberry et al., 1993). Indeed, an escalation in individuals' rates of violent act has been found after the onset of drug dealing, (Blumstein 1995; Van Kammen & Loeber, 1994). Howell et al. (1996) also observed a strong association between drug trafficking and violent crime in youth. As such, substance use may serve as a disinhibitor that potentiates the

severity of violent acts committed, and it may also be a broader extension of a chronically unstable and antisocial lifestyle.

Serious violent youths also generally have higher rates of substance use and abuse than their less violent counterparts (Dembo et al., 1991; Elliott, 1994; Elliott et al., 1989; Esbensen & Huizinga, 1991; Fagan, 1993; Johnson et al., 1991). In a Denver survey, for example, approximately 58% of serious violent offenders were alcohol users and 34% were marijuana users. The prevalence and frequency of use were much lower in youths who were not seriously violent (Huizinga & Jakob-Chen, 1998). White et al. (1999), reporting on the Pittsburgh Youth Study, analyzed six years of annual data for 506 boys. In general, they found that, over time, changes in alcohol consumption, compared with changes in marijuana use, was a much stronger predictor of changes in violence. Associations between frequency of substance use and violence were relatively strong throughout adolescence, and severity of drug use was associated with an increased frequency of violence. Herrenkohl et al. (2000) reported that drug selling at age 14 years tripled the odds for later violence and availability of drugs doubled the odds. At age 16 years, drug selling quadrupled the odds for violence at age 18 years and availability of drugs tripled the odds for later violence. In a large sample (N = 3, 586) of juvenile offenders paroled by the California Youth Authority (CYA), Lattimore et al. (2004) found that evidence of prior drug abuse increased the expected arrest rate by 23 percent after holding other variables constant. Saner and Ellickson (1996) also reported, in a 6-year longitudinal self-report survey of over 4,500 high school seniors and dropouts, that early and problematic drug use and drug selling were highly significant predictors for any and serious (i.e., persistent or predatory) violence.

Further empirical support has been garnered for the role of substance abuse in violence, although findings have not been uniformly large or consistent. The Lipsey and Derzon (1998) meta-analysis found that substance use was not a substantially strong predictor of future violence ($r = .06$), although a possible caveat of this limited finding is that substance abuse was defined quite broadly, including illicit drugs, alcohol, and tobacco. However, both earlier and subsequent meta-analyses have generated more promising findings. For instance, in a meta-analysis of 129 studies that included both adult and juvenile samples, Lipsey et al. (1997) found significant positive associations between chronic ($r = .15$, k = 69) and acute ($r = .10$, k = 31) alcohol use and violent criminal behavior. Of note was that juvenile samples (i.e., under age 21) produced larger alcohol-violence correlations than older samples. Moreover, a later meta-analysis of 58 prospective studies by Derzon (2001) yielded an estimated grand mean correlation of $r = .21$ between antisocial and substance misusing behaviors with crimes against persons (i.e., interpersonal violence, battery, extortion, or threatening behavior). Some studies have also found substance abuse problems to be more severe among institutionally aggressive youth (Shields & Simourd, 1991) and more frequent among hospitalized youth with past histories of assault.

The relationship between substance abuse and violence has also been examined abroad in young offender populations. In a sample of 12,000 Norwegian adolescents ages 12-20 years, Rossow, Pape, and Wichstrom (1999) obtained a significant positive, but modest, bivariate correlation ($r = .19$) between frequency of alcohol intoxication and self-reported violent behavior after controlling for various confounding variables. Moreover, data from a longitudinal study of youth in New Zealand conducted by Fergusson et al. (1996) revealed that heavy drinking and violent offending remained associated even after adjusting for a large

number of confounding variables. The authors cite, "this may suggest that there is a direct cause between substance misuse and violent offending independently of common risk factors and life pathways on both outcomes" (Fergusson et al., 1996, p. 492).

Moreover, a recent Australian study (Lennings, Copeland, & Howard, 2003) of 300 incarcerated juveniles, 70% of whom admitted to committing a violent crime, found that increased amounts of both cocaine and alcohol use were both associated with violent offenses. Moreover, the prediction of violent crime was best explained by the self-reported tendency to become violent when using substances. Instrumental crime (i.e., to acquire substances) was not a significant predictor of violent crime in this sample. Several other studies have linked cocaine use and self-reported acts of aggression. Stimulant use and phencyclidine (PCP) have also been positively related to self-reported aggressive behavior, and longitudinal studies support a generally positive relationship between marijuana use/withdrawal and interpersonal violence (e.g., Moore & Stuart, 2003). This being said, the literature does not support a strong relationship between specific drug usage and aggressive behavior (Tiechner & Golden, 2000).

Finally, alcohol and illicit substance abuse has been shown to predict general recidivism in youths (e.g., Jung & Rawana, 1999; Niarhos & Routh, 1992; Benda et al., 2001; Myner et al., 1998), as has parent and/or youth denial of substance use (e.g., Stoolmiller & Blechman, 2005). In their meta-analysis, Cottle et al. (2001) found substance abuse to be a significant predictor of juvenile recidivism ($r = .15$), although substance use on its own was not significantly related.

1.4.2.13 *D13 Impulsivity/attention deficits*

The Impulsivity/Attention Deficits item is akin to the constellation of symptoms comprising ADHD that include hyperactivity (restless motor behavior), impulsivity (tendency to "act first, think later"), and attention deficits (deficits in sustained attention and concentration), or HIA. The HIA complex has been linked to various negative sequelae in adolescence and adulthood including academic deficits, impaired social relationships and work-related difficulties. There also appears to be a consensus concerning the co-occurrence of ADHD with antisocial outcomes (Hinshaw & Zupin, 1997; Lahey & Loeber, 1997). Research examining the relationship of each component of the HIA constellation with violence and general antisocial behavior is outlined as follows.

First, research has examined the relationship of various measures of neurocognitive functioning (i.e., the attention deficits domain) to violent and general recidivism. The Cottle et al. (2001) meta-analysis found that several neurocognitive measures bore relatively small, but significant relationships to general recidivism, including Full Scale IQ ($r = -.14$) and Verbal IQ ($r = -.11$), although Performance IQ was not significantly related to outcome ($r = -.03$). The Lipsey and Derzon (1998) meta-analysis also found that limited intellectual ability (e.g., low IQ, learning problems, low language ability) bore a modest but significant relationship ($r = .11$) to future violence and serious delinquency.

Second, some data also supports the relationship between symptoms of hyperactivity and violent, antisocial behavior. The Seattle Social Development Project (SDDP) is a prospective study of over 1000 male and female youth followed since 1985. Potential individual, family, school, peer, and community risk factors for violence at age 18 were measured at ages 10, 14, and 16 years (Herrenkohl et al., 2000). According to data reported

by Herrenkohl et al. (2000), hyperactivity rated by parents and teachers at age 10 years was a strong predictor (doubling the odds) of later violence. At both age 14 and 16 years, risk-taking tripled the odds for later violence, while parent-rated hyperactivity continued to double the odds. These data provide support for a strong link between childhood hyperactivity and violent offending, with hyperactivity continuing to increase the risk for violence through mid-adolescence. Expanding on these findings through structural equation modeling, Patterson, DeGarmo, and Knutson (2000) showed that a latent construct for hyperactivity was significantly related to a latent construct for antisocial problems. Their findings are consistent with the idea of a progression that moves from hyperactive to antisocial behavior. (For the shift from hyperactivity to later antisocial behavior to occur, Patterson et al.'s data indicated that *parental discipline practices* were a causal mechanism.)

Third, substantially more data exists, however, demonstrating impulsivity in youths to be reliably linked to violent and general recidivism. For instance, in the Hawkins et al. (1998) review, several such variables were reported to be predictive of official and self-reported violence, including hyperactivity (*mean r* = .13), attention deficits (*mean r* = .17), impulsivity (restlessness) (*mean r* = .20), and risk taking (*mean r* = .25) in childhood or early adolescence. Additionally, Tinklenberg, et al. (1996) found the variable "restraint" (a construct related to impulsivity) to be related to homicide and future felonies in youths. Grosz and colleagues (1994) found that hospitalized youth with a history of assaultive behavior scored higher on a psychometric measure of impulsivity (Impulsivity Scale) than non-assaultive youth. Beyers et al. (2001) further found that HIA problems predicted later violence much more strongly in adolescents from high SES neighborhoods than among those in low SES neighborhoods. In an assessment of a number of childhood and family factors

associated with convictions for later violent offenses, impulsivity, risk taking behavior, and a lack of concentration was associated with violent outcomes (Farrington, 1989). Similarly, individuals high on the dimension of novelty seeking at age 11 have been found more likely to engage in later violent antisocial behavior (Sigvardsson, Bohman, & Cloninger, 1987).

Despite widespread agreement for the importance of impulsivity in antisocial and violent behavior (e.g., assaultive and self-injurious behavior), progress in this area has been hampered by poor operationalization and measurement of the construct (Loeber, 1990; Loeber et al., 2001). To improve understanding of impulsivity, Moffitt and colleagues (2001) administered 11 different measures of impulsivity (Time Perception, Stroop Test, Trail-Making Test, Circle Tracing Task, Delay of Gratification, Card-Playing Task, Eysenck Impulsiveness Scale, Teacher Reports of Impulsivity, Ego Undercontrol, Videotape Obervations) to boys aged 13 years as part of the Pittsburgh Youth Study. Exploratory and confirmatory factor analysis techniques revealed two distinct, yet correlated forms of impulsivity. The first factor measured impulsivity associated with lack of behavioral control (*behavioral impulsivity*). The second factor measured impulsivity associated with effortful and planful cognitive performance (*cognitive impulsivity*). Both behavioral and cognitive impulsivity were related to conduct problems; however, links between behavioral impulsivity and externalizing behavior problems were stronger (average $r = .43$) than those between cognitive impulsivity and externalizing problems (average $r = .18$). Impulsivity has also been referred to as the "hallmark" of psychopathy by other researchers (Lynam, 1997) and in one study of boys aged 12-13 years, behavioral impulsivity correlated more strongly with a measure of psychopathy ($r = .32$) than did cognitive impulsivity ($r = .10$). Children scoring high on behavioral impulsivity were also more likely to commit violent acts.

Lynam's 1996 review paper on early identification of the chronic offender concludes that children who manifest HIA symptoms and conduct problems (CP) are the greatest risk for serious, frequent, and chronic offending – a group of children that he dubbed "fledgling psychopaths". To test this prediction, in a 1998 follow-up study, HIA-CP adolescent boys scored higher than HIA-only and CP-only boys on a measure of psychopathic personality. Additionally, HIA-CP boys were the most antisocial in terms of future and concurrent behavior (Lynam, 1997). Most recently, Lynam et al. (2000) found that impulsivity, as assessed by a multimethod, multisource battery of measures, was strongly related to offending in adolescent males. Specifically, impulsivity at age 13 years, predicted self-reported violent offending at age 17 years ($\beta = .35$). Impulsivity was also found to interact with neighborhood context to influence offending. That is, impulsive boys in poorer neighborhoods were at greater risk of offending violently.

A recent investigation by Barkley, Fischer, Smallish, and Fletcher (2004) followed a relatively large sample of clinically referred hyperactive children and a community control group for more than 13 years into early adulthood. Significantly more of the hyperactive group ($n = 147$) than the control group ($n = 73$) had ever engaged in or were arrested for assault with fists and assault with a weapon (as measured by self-report and official arrest records). They also differed on a dimension accounting for more than 20% of the variance termed the Drug-Related Antisocial dimension. This group difference was related to the severity of ADHD in adolescence after controlling for the contribution of ADHD and severity of conduct problems in childhood. Barkley et al.'s (2004) results also confirmed that the joint occurrence between CD and ADHD is a major risk factor for drug use, but not

hyperactivity/ADHD alone. Thus, hyperactive children appear to be at greater risk for drug-related antisocial activities beyond the contribution made by CD in isolation.

Finally, in a sample of 71 school children 9-16 years of age, Colledge and Blair (2001) found significant inter-correlations between teachers' ratings of children's inattention and impulsivity and psychopathic tendencies. The inter-correlations were mainly due to the association between the impulsivity component of ADHD specifically and the antisocial behavior component of psychopathy ($r = .57$), consistent with Lynam's (1996) "fledgling psychopathy" hypothesis. A study by Babinski, Hartsough, and Lambert (1999) lends further support to this position. In this investigation, early conduct problems and hyperactivity-impulsivity were significant predictors of later criminal involvement, while inattention was not.

In sum, extant literature indicates that impulsivity is a substantially better predictor of violent and aggression behavior than the attentional/hyperactivity component of ADHD.

1.4.2.14 *D14 Cognitive distortions*

It is widely believed that distorted thinking processes play an important role in youth psychopathology. Differences in cognitive-processing tendencies have been associated with externalizing (e.g., aggression) and internalizing (e.g., depression) problems (Dodge, 1993; Kendall, 1991). For example, **Barriga** and colleagues (2000) found that self-serving cognitive distortions (e.g., self-centered, blaming others, minimizing/mislabeling, assuming the worst) were specifically associated with externalizing behavior problems (self-report: $r = .66$; archival measure of institutional misconduct: $r = .37$), whereas self-debasing cognitive distortions (e.g., catastrophizing, overgeneralizing, personalizing, selective abstraction) were

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specifically associated with internalizing behavior problems (self-report: $r = .55$) in a sample of incarcerated and community-dwelling youth.

More specific examinations of social cognitive variables in aggressive and non-aggressive adolescents (e.g., Dodge, 1980; Dodge et al., 1990) have found that aggressive youths often misread interpersonal cues and interpret ambiguous or pro-social communication as hostile (i.e., hostile attribution bias) and react aggressively. Thus, social-cognitive processes relating to presumption of hostile intent, reliance on aggression, and belief that aggression is acceptable behavior, have been theoretically and empirically linked to violence risk (Coie & Dodge, 1998). In fact, the notion that aggressive behavior may occur as an unchecked response to threatening or hostile cues in the environment is supported by a variety of neurological findings (Brennan, 1999). One two-part typology (Dodge & Coie, 1987), labeled the "reactive versus proactive typology", contends that adolescent offenders who are reactively violent (i.e., aggressive in response to threat) may have an overly sensitive psychophysiological response to stress. Proactive offenders (i.e., aggressive to achieve some instrumental purpose) on the other hand, might suffer from low arousal or a lack of fear.

Furthermore, research with adolescent females has documented significant associations between aggression and victim empathy, perspective-taking, and rational thinking (Carlo, **Raffaelli**, Laible, & Meyer, 1999). For instance, Chase et al. (1998) found that the justified use of force by adolescent girls was strongest when confronted with conflict involving a non-friend. Thus, adolescents who demonstrate inaccurate ways of attending to or conferring meaning on experience (**Barriga** et al., 2000; p. 37), may use cognitive distortions to justify violent behaviors (e.g., they may interpret ambiguous information as indicators of threat, selectively attend to violence-related information, and/or provide

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excuses, justifications or rationalizations for their behavior, including blaming and minimizing the seriousness of the offence), and such thinking patterns may be related to the increased likelihood of future violent behavior.

1.4.2.15 *D15 Poor parent-child interaction*

While an early review of studies linking family structure to delinquency found that marital discord and lowered parental supervision had a relationship to delinquent behavior (Loeber & Stouthamer-Loeber, 1986), a recent review indicates that the quality of the interaction between parent and child rather than structural components, such as parental criminality or family size, has the greatest impact (Goetting, 1994). The Lipsey and Derzon (1998) meta-analysis found several variables characteristic of poor parent child relations that predicted future violence in youths ($r = .19$), including punitive discipline, low parental involvement, low supervision, low warmth, negative attitude toward child, poor parent-child relations, poor parental practices, and severity in child training. Hawkins et al. (1998) further reported that low parent-child involvement/interaction and poor family bonding were associated with various violence outcome criteria, although the strength of the association tended to be small in effect and outcome measures were limited mostly to self-report. Using data obtained from the National Longitudinal Survey of Children and Youth (NLSCY), Latimer et al. (2003) identified five core correlates of self-reported delinquency among Canadian youth aged 12 to 15 years: 1) inconsistent and inadequate parenting, 2) history of victimization, 3) anti-social peer involvement, 4) negative school attachment, and 5) aggression. These were consistent across different forms of delinquency for both male and female youth. Violent offending (n = 1368) was positively correlated with witnessing violence in the home and negatively correlated with parental monitoring and parental

nurturance. Parental violence (i.e., threats, hitting the youth) was also found to correlate significantly with violent delinquency.

Brendgen et al. (2001) examined the moderating effects of caregiving behavior on the link between aggression at age 13 years and violence at age 16 and 17 years in a sample of 525 Caucasian boys. The relation of boy's proactive aggression in early adolescence to subsequent delinquency-related violence varied on the degree of parental monitoring. Low to moderate levels of parental monitoring was predictive of later delinquent-proactive violence. Similarly, the relation of boy's reactive aggression in early adolescence to subsequent dating violence varied on the degree of maternal warmth and caregiving behavior. Low to moderate levels of maternal warmth was predictive of later dating violence.

A recent reinterpretation of parental monitoring (i.e., tracking and surveillance) points out that parental monitoring is really knowledge that parents have about their children's activities outside the home and this knowledge is obtained from parental efforts (i.e., solicitation and control) and child disclosure. Consequently, an understanding of both these knowledge sources, especially factors that determine disclosure, is paramount (Stattin & Kerr, 2000). For instance, Paikoff (1995) has suggested that early sexual intercourse is a function of low parental supervision and that supervision is particularly challenged in disadvantaged neighborhoods. Consistent with this notion, Beyers et al. (2001) found that early sexual intercourse emerged as the strongest predictor for repeated violence for adolescent males in low SES.

Psychological and criminological theories have often considered that affective ties between children and caregivers are relevant to the development of antisocial behavior and crime. Fonagy and colleagues (1995; 1996) compared the attachment representations

(Bowlby, 1982) of offenders who had committed crimes against property and those who had committed violent crimes. The latter group reported more extremely disturbed attachment representations (e.g., insecure attachment, disorganized attachment). Recent data support the importance of parental attachments in influencing a youth's propensity for antisocial behavior. The Lehigh Longitudinal Study (Herrenkohl, Huang, Tajima, & Whitney, 2003) is a prospective study of 457 children followed from preschool into adolescence. Findings indicated that participants with higher scores on a parental attachment variable (e.g., communication, trust, and alienation in parent-child relationships) were significantly less likely to engage in self-reported violent behavior ($r = -.35$). Furthermore, using structural modeling analysis, parental attachment was not mediated by other factors (i.e., antisocial peers), but was directly associated with the use of violence among adolescents ($r = -.17$). Finally, reporting data from a 6-year longitudinal self-report survey of over 4500 high school seniors and dropouts from California and Oregon, Saner and Ellickson (1996) cite that losing a parent to separation, divorce or death was a significant predictor of predatory violence. Exposure to parental deviance and low levels of parental support also held up as strong predictors for any violence.

Finally, poor family relationships have also been shown to be a significant predictor of general recidivism in youths (Hoge et al., 1994; Tollet & Benda, 1999; Hoge et al., 1996; Jung & Rawana, 1999), as has inadequate/inconsistent family supervision or discipline (Hoge et al., 1994, 1996). The Simourd and Andrews meta-analysis (1994) also found poor parent-child relations (attachment, supervision) to be related to general recidivism among male ($r = .22$) and female ($r = .20$) youths.

1.4.2.16 *D16 Family stress*

Family stress, including large family size, frequent moves, marital discord and the like has also been associated with increased risk for violence and delinquency among youths. For instance, Farrington and Hawkins (1991) found that low income and large family size made parental discipline and monitoring accounted for 30–52% of the variance in latent constructs with direct contributions to predicting chronic juvenile offending. Shields and Simourd (1991) also found that institutionally aggressive youths had more significant family concerns (as measured by the YO-LSI) compared to non-institutionally aggressive youth. Using data from a 6-year longitudinal self-report survey of over 4500 high school seniors and dropouts from California and Oregon, Saner and Ellickson (1996) found losing a parent to separation, divorce or death to be a predictor of predatory violence. Exposure to parental deviance and low levels of parental support were also found to be significant predictors for any violence. Adolescent girls evidenced a particular vulnerability to family problems and disruptive events. Frequent changes in residence have also been found predictive of self-reported violence at age 18 among boys (Maguin et al., 1995).

The Lipsey and Derzon (1998) meta-analysis found that some indicators of family stress had fairly weak or modest relationships to future violence or serious delinquency, including family SES ($r = .10$) and a broad grouping of family characteristics that included parent background, high family stress, large family size, and marital discord ($r = .08$). The Hawkins et al. (1998) review reported similar findings with respect to family/marital conflict and various outcome measures of violence ($r = .12$). Most recently, Herrenkohl et al. (2003) used data from the Seattle Social Development Project to examine factors in adolescence that affect the probability of violent behavior at age 18 among youths who received high teacher

ratings of aggression at age 10. Youths who had experienced good family management practices by parents at age 15 had a lower probability (17%) of later violence; however, in the absence of good family management, the probability of violence at age 18 increased to 41%.

Indicators of family stress have also been found related to general recidivism in juvenile offenders. The Cottle et al. (2001) meta-analysis found that family pathology variables were positively related to general recidivism including family problems ($r = .28$), and to a lesser degree, single parent family ($r = .07$) and parent pathology ($r = .05$). The earlier Simord and Andrews (1994) meta-analysis also documented a modest relationship between certain family stress variables and recidivism including lower social class (females $r = .07$, males $r = .06$) and family structure/parental problems (e.g., broken home, marital problems) (females $r = .07$, males $r = .09$).

1.4.2.17 *D17 Social isolation*

There are different pathways in the development of antisocial behavior that are associated with different influences stemming from the social network (Loeber, 1990; Moffitt, 1993; Dishion et al., 1994; Stattin and Magnusson, 1996). Numerous studies have demonstrated the predictive power of peer rejection and lack of social support on subsequent maladjustment (e.g., Parker and Asher, 1987; Parker et al., 1995). Hence, one important peer influence on the development of violent behavior may be social isolation.

Indeed, in a meta-analysis of 34 source studies conducted by Lipsey and Derzon (1998), a broad risk variable encompassing few social activities and low popularity (i.e., social ties) among 12 to 14 year-olds, was the highest predictor of violent or serious delinquency at age 15-25 years ($r = .39$).

Individual studies have consistently found that rates of delinquent and criminal behavior, including violence, are higher among adolescents who spend more time in unstructured and unsupervised social activities (Osgood & Anderson, 2004). This finding has been shown to be robust and reliable, and holds despite strong controls for other individual differences factors, including criminal peers (Osgood & Anderson, 2004).

Peer group rejection and victimization have also been associated with increased risk for aggressive behavior (Schwartz et al., 1998), and have been shown to promote association with antisocial peers (Dishion et al., 1991). A comprehensive, multi-method, longitudinal study of 400 male and female adolescents conducted by Laird and colleagues in 2001, found a correlation ($r = .12$) between experiencing peer rejection in elementary school and greater involvement with antisocial peers in early adolescence, but only peer rejection experiences (not involvement with antisocial peers), predicted later externalizing behavior problems ($r = .05$). Externalizing problems were most common when rejection was experienced repeatedly. In this study, early externalizing problems did not appear to moderate the relation between peer rejection and later problem behavior, however, other researchers (e.g., Bierman and Wargo, 1995; Coie et al., 1995), have found that social rejection in combination with aggressive behavior best predicts later externalizing problems (quite possibly, pre-existing levels of aggression can lead to peer rejection; Loeber & Hay, 1997).

Importantly, a two-year longitudinal investigation by Bender and Losel (1997) found a risk effect for social integration. In this study of 100 high-risk adolescents in residential care, a lack of peer group membership was associated with increased behavioral problems (as measured by the externalizing scale of a widely used youth self report instrument) in less antisocial adolescents, but was observed to have a small protective effect for adolescents with

extreme externalizing problems. The authors also point out that influences of the social network on antisocial behavior may not be the same for both sexes.

Generally, speaking, social resources have been demonstrated to be more influential in girls. For instance, girls have been shown to be more dependent on intimate relationships than boys (Inderbitzen-Pisaruk & Foster, 1990). In the Bender and Losel investigation, a positive relationship with an intimate partner had a protective function in high-risk girls. Although these findings seem to contradict studies that have documented risk effects of intimate relations for girls (e.g., Stattin & Magnusson, 1990), it is likely that its impact is due to qualitative characteristics of the relationship (Bender & Losel, 1997). Stated simply, a positive relation to a prosocial partner may have a protective function in some high-risk youth (e.g. Rutter & Quinton, 1984; Werner & Smith, 1992).

1.4.2.18 *D18 Community disorganization*

Several broad community and neighborhood factors (e.g., extreme poverty, extensive drug dealing, prostitution, gang domination) have been associated with violent behavior in youths. In the Hawkins et al. (1998) review, poverty, community disorganization, low neighborhood attachment, availability of drugs, and neighborhood adults involved in crime, were shown to be predictive of various outcome criteria for self-reported and official convictions for violence. Data from the Seattle Social Development Project (as reported by Herrenkohl and colleagues in 2003), shows that living in a disorganized a disorganized neighborhood, characterized by run-down housing, crime, poor people, drug selling, gangs and disorderly neighbors, at age 15, significantly increased the youth's odds (by nearly two and a half times) for later violence.

Turning now to a few specific and well-researched factors, numerous investigations have associated residing in a low socio-economic status (SES) neighborhood with frequent and serious violent delinquency in adolescents (Beyers et al., 2001; Jonson-Reid, 1998). For instance, Beyers and colleagues (2001) found that the prevalence of repeated violence for males between the ages of 13 and 20 years living in Pittsburgh, was almost twice as high in disadvantaged (low SES), compared with advantaged (high SES), neighborhoods (17% vs. 10%). In this study, no additional risk factors were predictive of repeated violence in high SES neighborhoods after accounting for the substantial effect of physical aggression at age 13. The best multivariate predictors for boys living in low SES neighborhoods were early sexual intercourse, lack of guilt, poor adolescent-parent communication, and having carried a hidden weapon by age 13 (ROC = .79). Attitudinal problems and peer influences were associated with increased risk for later violence regardless of neighborhood type.

Closer to home, a small-area geographical analysis of the city of Saskatoon revealed a strong relationship between crime and socio-economic status (Kitchen, 2006). The mapping of crime variables revealed a solid clustering of High Crime Areas (HCAs) on the west side of the South Saskatchewan River, particularly in the inner city, in what were classified as "disadvantaged" areas (e.g., more than 20% of families living in low-income, poor housing conditions, low educational attainment, high levels of unemployment). This was especially evident for violent HCAs. By comparison, minor property and drug offences displayed a more dispersed pattern.

Community violence exposure has been shown to be a strong predictor of aggression in community samples of children and adolescents (e.g., Attar, Guerra, & Tolan, 1994; Bell & Jenkins, 1993; Gorman-Smith & Tolam, 1998; Osofsky, Wewers, Hann, & Fick, 1993;

Richters & Martinez, 1993). Similar findings have been obtained in samples of delinquent youth. For instance, in a random sample of over 350 detained and committed juveniles (Preski & Shelton, 2001), the odds that delinquent youth committed serious crimes were found to be four times greater when they had been exposed to community violence.

It has long been hypothesized that youth who are chronically exposed to community violence may become desentitized to its effects (e.g., Cooley-Quille & Lorion, 1999, Farell & Bruce, 1997; Fitzpatrick & Bolidizar, 1993), but only recently have researchers begun to test alternative models of the link between community violence exposure and violent behavior. One such investigation (Halliday-Boykins & Graham, 2001) compared four alternative models to determine the degree to which community violence exposure contributes to violent behavior, violent behavior contributes to community violence exposure, both are consequences of common antecedents, and both are manifestations of the same higher order construct. Findings support a violence involvement model (i.e., violence exposure and violent behavior are associated because they are both manifestations of general involvement in violence). The lack of support for the exposure to community violence leads to violent behavior model may be explained by sample characteristics. In this study, participants included 277 incarcerated adolescent offenders. These seriously antisocial or chronically exposed youth may differ from less antisocial youth, initially exposed youth, and community samples.

In the first study (Eitle & Turner, 2002) to examine the association between community violence and criminal behavior in a large (over 1000), representative sample of adolescents, community-based violent victimizations, recent exposure to violence in the community, and a history of receiving traumatic news, were significant predictors of criminal

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behavior even after controlling for the effects of criminal peers and prior deviance. Additional indicators of community disorganization related to general re-offending in youths include poor use of leisure/recreation ($r = -.23$) and to a lesser degree, SES ($r = .07$) (Cottle et al., 2001).

1.4.2.19 *D19 Poor compliance*

Failure to comply with the rules and expectations of community, correctional, and/or mental health services has been linked to general and violent recidivism. For instance, in a 3-year follow-up of approximately 300 incarcerated adolescent males, Katsiyannis and colleagues (2004) found that 47% of recidivists were parole violators, compared with 9% of non-recidivists. A prospective follow-up investigation of 108 Icelandic young offenders, given a conditional discharge after pleading guilty for property offenses and acts of violence, revealed that non-recidivists had more compliant characteristics, including an eagerness to please and avoidance of conflict and confrontation, than recidivists. In terms of violent recidivism, Lattimore and colleagues (1995) found that youth who had a history of release violations had a significantly greater likelihood of violent re-arrest upon follow-up. In a high risk residential sample of Ontario young offenders, assault on an authority figure and escape from custody predicted later violent behavior (Leschied, Andrews, & Hoge, 1993). Finally, juvenile offenders who do not engage fully when in treatment, and/or drop out, are at a high risk for recidivism (Chamberlain, Patterson, Reid, Forgatch, & Kavanagh, 1984; Hanson & Bussiere, 1998; Kazdin, 1990), while successful treatment completion is significantly related to lower rates of re-offending (e.g., Latimer et al., 2003; Lipsey et al., 1999; Smith et al., 2004).

1.4.3 *Summary and conclusions*

In sum, a review of the violence risk literature indicates that some VRS-YV items have strong research support (e.g., Criminality, Antisocial peers, Criminal attitudes), others seem more modestly supported (e.g., Poor compliance, Institutional violence), while some appear only weakly supported (e.g., Weapon use, Insight). Still, others appear to have varied and complex relationships with violence (e.g., Mental disorder, Instability of family upbringing, Impulsivity/attention deficits).

Although the items comprising the VRS-YV appear to vary in terms of the quantity and quality of research supporting their link to violent and criminal behavior in youth, the majority of items seem well supported by the extant research literature, in that all items appear to be conceptually, theoretically, and/or empirically linked to violence risk in youth. Furthermore, the instrument's obvious emphasis on potentially dynamic risk factors (e.g., 19 dynamic items vs. 4 static items), may serve to bolster the clinical utility of the tool by enabling it to assess risk, identify targets for treatment, and evaluate changes in risk due to treatment.

1.5 Transtheoretical Model of Change

Incorporated into the dynamic component of the VRS family of tools is a mechanism designed to assist treatment providers in identifying appropriate therapeutic approaches and assessing changes in risk as a function of treatment or experience (Wong & Gordon, 2006). The mechanism is based on Prochaska's Transtheoretical Model of Change (e.g., Prochaska & DiClemente, 1984; Prochaska, DiClemente, & Norcross, 1992) and as such, the TTM and its application to violence risk assessment and treatment will be briefly reviewed.

The Transtheoretical Model of Change (TTM; Prochasksa, 2001; Prochaska & DiClemente, 1984; Prochaska, DiClemente, & Norcross, 1992; Prochaska & Norcross, 1994) is thought to be one of the most influential models in the area of behavior change (Morera et al., 1998). A defining feature of this model is that behavior change progresses through a series of steps or stages. The TTM is comprised of five Stages of Change that define readiness for change. Precontempation (PC) involves no desire or awareness for change, Contemplation (C) involves the thought of changing (but not in the near future), Preparation (P) involves a behavioral commitment to change in the near future, Action (A) involves active engagement in the change process over time, although occasional lapses generally occur, and Maintenance (M) involves the consistent integration of change into one's lifestyle for an extended period of time across a range of contexts. The model is described as being transtheoretical because it incorporates cognitive, motivational, social learning, and relapse prevention theories.

Initially developed to understand and predict change in health behaviors, and most thoroughly evaluated in the area of smoking cessation, in recent years the TTM has been applied to offender populations including violent, sexual, and mentally disordered offenders (Casey, Day, & Howells, 2005). Although concerns have been raised regarding the application of the TTM to criminal behavior (e.g., differences associated with possible treatment environments, relatively low base rate behaviors, the manner in which the degree of change is measured), a number of papers have investigated the potential usefulness of the TTM in understanding change in offender populations and initial research efforts appear promising. Specific tools have been developed in order to identify individuals at different stages of change (e.g., Williamson et al., 2003), and stage-matched treatments are thought to

result in more successful outcomes, particularly during the early phases of treatment (e.g., Tierney & McCabe, 2001).

As was mentioned earlier, the VRS family of instruments incorporates aspects of the TTM in order to guide intervention efforts and to measure changes in violence risk potential as a function of treatment. As such, one advantage of the TTM is that it connects risk assessment to treatment provision. While the VRS is used to evaluate risk for violent recidivism, part of the risk appraisal involves identifying dynamic risk factors (i.e., criminogenic needs) to be targeted for treatment. The individual's initial standing on the dynamic factors in terms of the TTM can be assessed, interventions can be planned accordingly (i.e., matched to the individual's identified stage of change), and then later reassessed upon the completion of treatment to quantitatively ascertain the amount of therapeutic change that has taken place. The amount of change will, in turn, indicate how much the individual's risk will have been reduced. (This is not to say, however, that individuals may not worsen as a consequence of experience and thus increase in risk.) A further advantage of the TTM is that it provides a coherent theoretical framework to the VRS. That is, there is a clearly articulated rationale behind the assessment of change that is grounded in theory. Preliminary support for the utility of the TTM model, as incorporated into the VRS-SO, was recently reported by Olver et al. (2007) and further data are expected soon (Wong, Olver, & Lewis, in preparation).

Considerably less data is available on adolescent (e.g., Plummer et al., 2001) and young offender samples. In fact, the writer was only able to locate a single empirical study involving young offenders (Hemphill & Howell, 2000). In this study, the results of a psychometric evaluation of a self-report measure designed to measure four stages of

readiness to change (i.e., The Stages of Change Scales; SOCS) on a Canadian young offender sample were strikingly similar to normative clinical samples (Hemphill & Howell, 2000). Interestingly, criminally involved adolescents tended to identify fewer aspects of change than adults. Items designed to measure the Precontemplation and Contemplation stages were collapsed into a single factor, and adolescents appeared to equate change with taking action. However, the authors contend that action oriented, cognitive-behavioral, family oriented treatment is not effective for all adolescent offenders. Moreover, action oriented interventions, when prematurely delivered, may serve to lower motivation to change! According to the authors, adolescents are generally less motivated to change than older offenders, and may stand to gain particular benefit from interventions aimed at increasing motivation to change.

Recommendations have since been made by researchers and clinicians for use of the TTM with violent adolescents. For instance, Willoughby and Perry (2004) have asserted that the TTM offers a way of connecting risk assessment to treatment in violent youth, as it has done in adults. They further argue that treatment interventions should be matched to the individual's stage of change with respect to each criminogenic need. For instance, cognitive/verbal interventions tend to be received better by individuals in the pre-contemplative or contemplative stage, whereas specific behavioral approaches (e.g., rehearsing new skills) tend to be more effective for individuals within the action stage. Naturally, if there is a mismatch between the stage-level of the intervention and the individual's readiness to change, the approach is less likely to be received well or prove clinically effective. Thus, the TTM could help to facilitate a shift from "one size fits all"

interventions, to tailoring treatments to suit the individual, and assisting in the change process, rather than viewing clients as resistant or untreatable.

In sum, the incorporation of a modified stages of change model appears to be a unique and promising feature of the VRS family of instruments. However, there is little direct evidence to support the efficacy of stage-matched interventions with forensic clientele as guided by these tools, or to confirm that changes on VRS dynamic variables are linked to changes in recidivism risk, particularly for nonsexual violence. Similarly, while it would seem that aspects of the TTM model may be particularly useful for forensic clientele, including violent young offenders, the extant research is scant.

At this point, it is important to emphasize that an accurate and comprehensive risk assessment, even if it does assess factors such as readiness to change, is not an endpoint in itself. Rather, assessment should be relevant and linked to the goals of treatment - that is to reduce recidivism by lowering risk. As such, the young offender treatment literature is outlined in the next section.

1.6 Effective Intervention for Young Offenders

1.6.1 *Historical Overview*

Up until the mid 1980s, the prevailing opinion in the research literature was that clinical intervention with juvenile offenders was not effective, or as stated by Martinson (1974) "nothing works" (p. 49). In recent years, this conclusion has been vigorously challenged, especially following the development and application of new statistical techniques, namely meta-analytic procedures. In his review of early meta-analytic investigations (e.g., Andrews et al., 1990; Whitehead & Lab, 1989), Lipsey (1992) concludes that "despite differing interpretations… these investigations all reported positive mean effect

sizes of about the same order of magnitude - approximately a one-fourth standard deviation decrease in delinquency for treatment groups compared to controls" (p. 132). This pattern of results was confirmed and extended by Lipsey in his own early meta-analytic work. Most notably, he found that behaviorally specific and structured treatments produced larger effects (20% or more reductions in recidivism rates for treated youth compared to controls) than traditional counseling approaches (Lipsey, 1992a, 1992b). In light of evidence for substantial variability across studies however, Lipsey concluded his paper by urging researchers to put aside arguments about whether treatment works or not and "move on the more interesting and challenging questions of what works best, when, and why" (Lipsey 1992a, p. 143). More than a decade later, emphasis has remained on "what works", and researchers continue to answer the call for empirically validated intervention strategies for the treatment of juvenile offenders.

1.6.2 *Cognitive-Behavioral Treatment Approaches*

Cognitive-behavioral treatment approaches are now considered to be best practice for a broad variety of mental health concerns. In offender populations, cognitive-behavioral treatments (CBTs) may be defined as specific, systematic interventions designed to correct dysfunctional and criminogenic thinking patterns (Lipsey, Chapman, & Landenberger, 2001). Various techniques are employed in order to restructure criminogenic cognitions and build flexible and adaptive cognitive skills. For instance, role-plays are often used to help consolidate the learning of new skills. Prototypical examples of CBTs include the Reasoning and Rehabilitation program (Ross & Fabiano, 1985) and Aggression Replacement Training (Goldstein & Glick, 1987).

A small (N = 14), but rigorous, meta-analysis examining the effectiveness of CBT programs for reducing criminal reoffending by Lipsey, Chapman, and Landenberger (2001) found that treated juvenile offenders (both on probation/parole and in custodial institutions) had one-third to two-thirds the recidivism rates of untreated controls (i.e., treatment-as-usual control groups). Unfortunately these results were obtained with demonstration programs - no research studies of practical CBT programs with juvenile offenders were found that met the methodological standards of this analysis - and participants were mostly male. This being said, the best available research supports the concept of CBT as an effective intervention for juvenile offenders and the best available programs are capable of producing sizeable reductions in recidivism.

1.6.2.1 *Relapse prevention.* Many CBT programs incorporate a relapse prevention component. Usually, this component is part of a maintenance strategy for program participants. In short, participants are taught alternative responses to high-risk situations. A recent meta-analytic review of 24 unique studies, contributing 40 tests of the effectiveness of relapse prevention elements, yielded a moderate reduction in recidivism (57.5% for the control group and 42.5% for the treatment group) (Dowden, Antonowicz, & Andrews, 2003). Components concerned with training significant others in the program model, identifying an offense chain and high-risk situations, and role-playing these situations were most effective. Increasing the number of relapse prevention components targeted within the program also enhanced the therapeutic potential of the program. In this novel investigation relapse prevention yielded significantly larger treatment gains for young offender populations (eta = .34). Thus, preliminary data suggest that young offenders derive more benefit from a relapse prevention program than their adult counterparts. In the adult literature, there has been a call

to integrate relapse prevention with strength-based approaches (e.g., Good Lives Model; Ward & Gannon, 2006; Ward, Mann, & Gannon, 2007; Ward, Melser, & Yates, 2007). Although good outcome studies may appear in the near future, the available literature is small.

1.6.3 *Intervention with Serious and Violent Juvenile Offenders*

In 1999, Lipsey addressed the question of whether rehabilitative treatment can be effective for the most serious juvenile offenders. For the 200 effect sizes representing intervention effects for this sub-population of offenders, a mean effect size of 0.12 (which translates into a 12 percent decrease in recidivism for treated juveniles) was obtained, suggesting a positive, yet modest treatment effect. As in previous studies, the heterogeneity between effect sizes was very large. After variability due to methods and procedures was statistically removed, studies of intervention with noninstitutionalized juveniles ($N = 117$) were separated from those with institutionalized juveniles. Impressively, the best interventions for noninstitutionalized juveniles, including individual counseling, interpersonal skills training, and behavioral programs, reduced recidivism by about 40%. For institutionalized youth, relatively large, statistically significant effect sizes were found for interpersonal skill programs, teaching family homes (i.e., community-based, family-style, behavior modification group homes), and behavioral programs. Such interventions were reported to have an impact on recidivism equivalent to reducing a control group with 50% recidivism to 30-35%. For both groups, a number of critical program characteristics made independent, add-on, contributions to effectiveness (in the 5-8 percentage point range each). For example, a program length of more than 6-months duration, program delivery by non-juvenile justice personnel, strong program implementation, well-established programs

(running for 2 years or more), were all found to enhance program effectiveness by significant increments. Taken together, optimal combinations of program elements have the capacity to reduce the recidivism of serious juvenile offenders by 40-50% (almost half!).

This reduction in recidivism also yields substantial emotional, social, and financial benefits. For instance, an extensive cost-benefit analysis conducted by Aos, Phipps, Barnoski, & Leib (2001) estimated that American taxpayers living in Washington State gain approximately \$31 661 in criminal justice savings for each youth who participates in Multisystemic Therapy (described below). Adding the benefits that accrue to crime victims increases the value to \$131 918, which is equivalent to a benefit to cost ratio of \$28. 33 for every dollar spent. (It warrants mentioning that although this review included early childhood, middle childhood, non-juvenile offender, juvenile offender, and adult offender programs, Aos and colleagues found the largest and most consistent returns for programs designed for juvenile offenders.)

The above being said, there is a need for more scientifically rigorous studies on youth violence prevention interventions. To illustrate this point, Limbos and colleagues (2007) recently conducted a systematic review of youth violence prevention programs in the United States. They employed strict inclusion criteria (e.g., recent, peer reviewed, and methodologically rigorous publications) and sought to evaluate study quality using standards developed by the National Institute of Health. None of the 41 studies, which included 15 randomized controlled trials, fulfilled all criteria. This limited the authors' ability to draw conclusions about program effectiveness and prompted them to call for the standardized execution and reporting of interventions and the need to refine scientific approaches. Although, consistent with past research, the authors reported that tertiary-level interventions

(i.e., focused on youth who had already engaged in violent behavior) were more likely to report effectiveness.

Program integrity (e.g., monitored program compliance, staff training) is also thought to be an important contributor to program success, and this notion has recently been supported by meta-analysis (e.g., Latimer et al. 2003).

The most promising treatment approaches for violent juvenile offenders are reviewed below, although the current picture may change as new rigorous studies become available and the evaluation evidence accumulates (Aos et al., 2004).

1.6.4 *Multisystemic Therapy*

At present, the most promising treatment approach for serious and violent criminal behavior in adolescents is multisystemic therapy or MST (Henggeler & Borduin, 1990). The primary goals of MST are to empower parents with the skills and resources needed to independently address the inevitable difficulties that arise in raising adolescents and to empower adolescents to cope with familial and extrafamilial problems (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). Drawing upon Bronfenbrenner's (1979) social-ecological theory of behavior, and consistent with empirically established causes and correlates of youth criminality, MST interventions target identified child and family problems within and between the multiple systems in which family members are embedded (e.g., school, work, peers, community). Interventions are derived from strategic family therapy, structural family therapy, behavioral parent training, and cognitive-behavioral therapy, yet they are individualized and highly flexible. Services are delivered in the youths' natural environments in order to enhance family cooperation, to allow for more

accurate assessment of identified problems and of intervention results, and to promote long-term maintenance of therapeutic changes.

Several outcome studies have been conducted to evaluate the clinical- and cost-effectiveness of MST with youth who engage in serious antisocial behavior (Borduin, Henggeler, Blaske, & Stein, 1990; Borduin et al., 1995; Brunk, Henggeler, & Whelan, 1987; Henggeler et al., 1991; Henggeler, Melton, Brondino, Scherer, & Hanley, 1997; Henggeler, Melton, & Smith, 1992; Henggeler et al., 1986). For instance, in 1992, 84 chronic juvenile offenders, more than half of whom had been arrested for violent crimes, were randomly assigned to receive MST or usual services provided by the Department of Juvenile Justice in the State of South Carolina. MST was found to be effective in reducing violence, crime activity (fewer arrests), and incarceration (fewer weeks incarcerated), at 59-weeks post referral (Henggeler et al., 1992; 1993). At long-term follow-up (2.4 years) the MST group reported less aggression, less criminal activity, and more family cohesion than the usual services group. Similar results were obtained in a larger study of 200 chronic and violent juvenile offenders in Missouri (Borduin et al., 1995). This time, youth were randomly assigned to receive MST or individual therapy. At 4-year post referral follow-up, youth who had completed MST had significantly lower recidivism rates (22.1%) than those who completed individual therapy (71.4%), and were also significantly less likely to have been arrested for violent crimes. A third randomized trial with violent and chronic juvenile offenders (Henggeler et al., 1997) demonstrated the effectiveness of MST in reducing out-of-home placements and illustrated the importance of therapist adherence to the MST principles in obtaining favorable outcomes. MST has also been shown to reduce substance use (Henggeler et al., 1991; Henggeler et al., 2002) and substance-related arrests (Borduin et al.,

1995). Thus, MST is an empirically validated, cost effective treatment that has been shown to reduce two related problems - violence and substance use (Randall & Cunningham, 2003) - in chronic juvenile offenders, over both the short and long term.

In perhaps one of the most important randomized trials of MST, Borduin et al. (2005) found that chronic juvenile offenders who completed MST had lower recidivism rates (22%) than those who dropped out of MST (47%), completed individual counseling (71%), dropped out of individual counseling (71%), or refused to participate in either treatment (88%). Thus, while MST researchers and practitioners acknowledge that engagement of individual youth can facilitate treatment gains, such engagement is thought to be by no means necessary, and it is recommended that individual treatment is pursued as a last resort (Henggeler et al., 1998). However, there is little information on individuals and families who "refuse" to participate or "drop-out" of MST. It is likely that this group contains a subgroup of juveniles so unmanageable in the community that they receive custodial dispositions, and that a further subgroup is unmanageable even in secure custody. However, empirical research on treatment approaches that reduce future violence in these subgroups is scant.

Finally, not all outcome data on MST has supported its effectiveness. The first and only Canadian evaluation of MST conducted to date, found only a 10% reduction in convictions, and only slight decreases in incarceration rates, across four sites in Ontario (i.e., Simcoe, London, Mississauga, and Ottawa). In fact, the MST group ($n = 200$) and the treatment as usual group ($n = 200$) were not statistically different on any outcome measure of offending collected at 6 months, and 1, 2, and 3 years (Leschied & Cunningham, 2002). This being said, there was considerable variability in recidivism outcomes across sites. Program maturity has also been identified as a possible confounding factor. However, the study did

not include an assessment of treatment fidelity which is critical to understanding results obtained in real world settings. Evaluation is ongoing and the results remain unpublished.

1.6.5 *Multidimensional Treatment Foster Care*

Similar to MST, Multidimensional Treatment Foster Care (MTFC) is a family-focused skill-training intervention that targets individual, family, and school factors linked to antisocial behavior. However, in MTFC, youths are placed in the care of trained and supported foster parents who apply behavioral training techniques (Chamberlain, 1994). The impact of MTFC on violent behavior has also been evaluated using randomized controlled trials, although such investigations have included smaller samples and tend to be less methodologically rigorous (e.g., single outcome criteria, relatively short follow-ups) than MST trials. In what is arguably the most rigorous investigation to date (Eddy, Whaley, & Chamberlain, (2004), 79 serious and chronic male juvenile offenders, the majority of whom were Caucasian, were randomly assigned to MTFC ($n = 37$) or the usual group home services (GC, $n = 42$). There were no significant differences between participants in the two treatment conditions at baseline, and youth were assessed at 6, 12, 18, and 24 months following baseline. Overall, results indicated that MTFC youth were significantly less likely to commit violent offences than GC youth ($b = -.81$, $p < .05$). Only 5% of MTFC youth had two or more criminal referrals for a violent offense in the two years following baseline, as compared to 24% of GC youth.

Taken together with the MST findings described above, the results point to the importance of engaging the family in treatment programs for violence-prone youth, and provide additional support for the utility of high-intensity, high-fidelity, structured, multi-modal, and skills-based community treatment programs. While it is impressive that the

participants in these studies appear to be serious, chronic, and violent juvenile offenders, it is important that youth deemed by authorities to be an "extreme threat" were placed in residential settings and therefore, were not included in the majority of studies (Eddy et al., 2004; p.3).

1.6.6 *Institutionally Based Programming for Violent and Disruptive Youth*

While community-based treatment has been shown to be more effective compared to treatment in an institutional setting (e.g., Andrews et al., 1990; Lipsey, 1999), a recent meta-analysis examining the effectiveness of treatment for youth already engaged in criminal behavior (Latimer et al., 2003) found no discernable differences in recidivism rates between the two groups, suggesting that program characteristics such as the form of treatment (e.g., multi-focused) and specific treatment targets (e.g., antisocial attitudes) may be more important than the treatment setting. Although this meta-analysis included 195 unique studies, conducted over a 50-year period (1964 to 2002), only 7 were comprised primarily of violent offenders. Moreover, the sample contained only 12 Canadian studies (8%), ethnicity could not be coded, and a mere 18% included female participants. Thus, there is limited data on successful treatment strategies and community reintegration programs for violent juvenile offenders in custody. Unfortunately, these youth are most at risk of re-entering the criminal justice system as adults, many for a violent offense (Blackburn, Mullings, Marquart, & Trulson, 2007; Snyder & Sickmund, 2006). Current research efforts however, inspire cautious optimism.

For instance, Caldwell and Van Rybroek (2001) have reported preliminary support for the efficacy of a "decompression" treatment program for highly disruptive and aggressive incarcerated juvenile offenders. Although the decompression model was piloted on a small

number of male youths ($N = 10$), the study included two control groups (i.e., assessment-only, $N = 10$; treatment as usual, $N = 10$) matched on a case by case basis according to a number of demographic, behavioral, and personality variables (e.g., PCL-YV score, criminal history, institutional conduct reports). The primary goal of decompression is to lift an individual out of a compressed cycle of extensive discipline and over-controlled security measures and into conventional education, rehabilitation, and treatment programs. Behavioral contracts linking desired activities to short periods of minimal compliance are used to provide tangible experiences, shift antagonistic bonds, and obtain sufficient behavioral control to engage in services. In this preliminary investigation, participants receiving decompression treatment and usual mental health treatment services were less likely to recidivate in the 2 year follow-up period than youth assigned to the assessment-only control group (10%, 20%, and 70% recidivism respectively). Although the data are not sufficient to conclude that the decompression model itself produced improved institutional behavior and lower violent recidivism, it does suggest that treatment services may be effectively administered to even the most unmanageable and disruptive institutionalized youth.

Follow-up investigations with a larger samples by the same authors (e.g., Caldwell & Van Rybroek, 2005; Caldwell, Skeem, Salekin, & Van Rybroek, 2006) have found that untreated comparison youth are twice as likely to commit violent offenses as treated youth (e.g., 44% vs. 23% respectively; X^2 (1, $N = 248$) = 13.75, $p < .001$; Caldwell & Van Rybroek, 2005) after controlling for the effects of nonrandom assignment. Treated youth were also 6 times less likely to engage in felony violence following release (Caldwell & Van Rybroek, 2005). In these investigations, the "treatment" group consisted of youth who were transferred to a juvenile mental health facility due to their failure to adjust to a traditional institutional

setting. Specifically, the youth had been sufficiently disruptive and/or aggressive to warrant expulsion from conventional rehabilitation services. Treatment included the decompression model described above. Although additional quasi experiments and randomly controlled trials are needed, this new and emerging body of research would seem to suggest that treatment approaches responsive to the issues that generate treatment resistance in youth are associated with relatively slower and lower rates of violent recidivism (Caldwell, Skeem, Salekin, & Van Rybroek, 2006).

Finally, as many of the youth comprising the above samples may have psychopathic features, Caldwell, McCormick, Umstead, and Van Rybroek (2007) have most recently investigated how youth with such features ($N = 86$) respond to programming designed to treat serious and violent juvenile offenders with institutional behavioral problems. Aside from employing a variation of the decompression model described above, programming in this study was reported to emphasize interpersonal processes, social skills acquisition, and the development of conventional social bonds, and includes school services, group therapy focused on anger management, substance abuse treatment, sex offender counseling, and individual therapy. A behavioral point program (Today-Tomorrow Program) provides readily available and increasing incentives for positive behavior. Participants in this study received varying lengths of treatment, with an average length of treatment of 45 weeks. Consistent with past research findings, psychopathic features, as measured by the PCL-YV ($M = 30.2$, $SD = 5.1$), was related to historical behavioral problems, aggression before treatment, and initial institutional misconduct. However, psychopathic features did not predict poor treatment response or recidivism post treatment. In fact, youth with psychopathic features

demonstrated a positive response to treatment as evidenced by behavioral ratings and security scores. Response to treatment was also predicted by length of time in treatment.

Taken together, the findings of Caldwell and colleagues suggest that sufficient dosages of appropriate treatment (i.e., high intensity, long duration) can lead to improved behavior and lower rates of violent recidivism in sub-samples of high-risk, high-need, male juvenile offenders, including those with psychopathic features, institutionally disruptive or unmanageable behavior, and treatment non-compliance. The results, although encouraging, require replication by independent researchers using independent samples, and further methodological and statistical controls are needed to better discern the role of qualitative (e.g., amount of treatment) and qualitative factors (e.g., type of treatment) and increase understanding of the underlying change processes, which remain unclear. For instance, the samples described above are comprised of a high percentage of African American youth, and the treatment program boasts frontline staff ratios more than double that of the usual treatment services.

1.6.6.1 *Dialectical Behavior Therapy.* It is also worth noting that in recent years Dialectical Behavior Therapy (DBT; Linehan, 1993) has been adapted for youth who have difficulty controlling their emotions, including violence-prone juvenile offenders living in residential settings. Key components typically include enhancing behavioral skills in dealing with difficult situations, and motivating youth to change dysfunctional behaviors and employ newly learned skills in daily institutional life. Although rigorous evaluations are lacking, and sample sizes have tended to be small, preliminary evaluations have been positive. For instance, a pilot program in Washington State reported a 9% reduction in violent recidivism ($N = 63$), in comparison to matched controls ($N = 65$), over a 3 year follow-up (Drake &

Barnoski, 2006). This intervention may hold particular promise, as it is one of the few programs primarily targeted towards female youth.

All told, while researchers have not yet found Walker's (1989) "magic key", and research on Canadian samples (including female youth and ethnically diverse youth) is scant, recent findings are encouraging and suggest that appropriate treatment programs can establish precursors to change in even the most violent and disruptive youth.

1.7 Conclusions and Research Implications

In conclusion, a large empirical literature has demonstrated that new technologies exist to assess youth risk for reoffending with increasing accuracy. Recent developments with new measures have focused on identifying malleable targets for treatment (i.e., dynamic risk factors) involved in the causation and maintenance of criminal and violent behavior, and viable therapeutic approaches have been developed to reduce such behavior (e.g., MST). The VRS-YV presents with an important unique advantage in that it is designed to bridge the practices of assessment and treatment and measure therapeutic change. In doing so, this tool has potential to make a strong contribution in service provision to violent youth. Given the potential merit of the VRS-YV in enhancing the quality of clinical service provision, evaluation of this promising tool seems a logical next step and is the focus of this dissertation.

1.8 Purpose of the Current Study

The primary objective of the current study is to further develop effective clinical assessment of violent youth by evaluating a preliminary version of a newly developed risk assessment instrument designed specifically to assess adolescents' risk for violent offending and to inform and facilitate violence reduction treatment - the Violence Risk Scale-Youth Version (VRS-YV; Lewis, Wong, & Gordon, 2004). The present evaluation includes an examination of the instrument's basic psychometric properties (Study 1), as well as an investigation of the instrument's predictive accuracy and ability to assess change (Study 2), using a sample of young offenders who have received mental health services in the community. The predictive accuracy of two instruments currently being used to guide predictions of future risk for criminality and violence in youthful offenders, the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2003) and the Psychopathy Checklist: Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003), were also evaluated, relative to the VRS-YV, given that these instruments appeared to have the most research support and strong psychometric properties.

STUDY 1: BASIC PSYCHOMETRIC PROPERTIES OF THE VRS-YV

1. Hypotheses

The following hypotheses regarding the VRS-YV's basic psychometric properties were informed by the existing literature on the psychometric properties of current youth and adult risk assessment instruments, including the VRS-YV's parent instrument, the Violence Risk Scale (VRS; Wong & Gordon, 2006), as reviewed earlier. As observed with its parent instrument, it was anticipated that the VRS-YV would have acceptable psychometric properties, including internal consistency, reliability, and factorial validity.

1.1 *Item analyses.* It was hypothesized that a series of item analyses would reveal items demonstrating significant correlations with each other and the scale total.

1.2 *Reliability analyses.* The VRS-YV was expected to demonstrate acceptable reliability through high internal consistency of total scale score (i.e., uniform and homogenous item content).

1.3 *Exploratory factor analysis.* It was proposed that an exploratory factor analysis (EFA) of scale items would yield a stable, parsimonious, and interpretable factor solution. Derived factors were expected to be internally consistent (i.e., homogenous), with small residuals, and account for a fairly large portion of the total variance.

2. Method

2.1 *Participants*

Participants included 133 male ($n = 68$) and female ($n = 65$) youths. Approximately 63.2% of participants were Aboriginal and the majority of the balance (24.1%) was Caucasian. The mean age of the sample at data collection was close to 16 years ($M = 15.68$, $SD = 1.51$). All youths had been charged with having committed a violent offense, or had been found guilty of committing a violent offense, under the *Youth Criminal Justice Act* (or the former *Young Offenders Act*).

The vast majority of participants had index (i.e., current) charges or convictions for assault (76.1%), approximately half (36.2%) of which were considered serious in nature (e.g., assault causing bodily harm, assault with a weapon). Many participants had also been charged or convicted with weapons related offenses (35.4%) and robbery was part of the index offense for a quarter of the sample. A small number of youths had been charged or convicted for murder or manslaughter (3.8%). Most of the participants did not have a sex offense as part of their index offense ($n = 2$). With respect to non-violent offenses, 32.3% of participants had a property crime (e.g., theft, break and enter) as part of their index offense, and over half of the youth had at least one breach (58.7%). (The sum of these percentages exceeds 100% as youths, not uncommonly, committed multiple types of crimes). Overall, the average number of criminal charges or convictions comprising the index offense was approximately five ($M = 5.21$, $SD = 4.22$) and the average number of violent offenses was two ($M = 2.01$, $SD = 1.81$).

All participants had received community mental health services from the Young Offender Program, which is part of the Child and Youth Program (CYP) of Mental Health

and Addiction Services in the Saskatoon Health Region, between 1994 and 2004, and roughly 23% of the total sample had been referred to a program designed to treat high risk and violence-prone youth entitled the High Risk Violent Young Offender Initiative (HRVYOI).

At the time of receiving services, the majority of youth were residing in the community, although 45.8% were in custody (open 26.3%; secure 19.5%). The bulk of participants (64%) were not attending school at the time of their index offense and the average level of schooling achieved at the time of data collection was Grade 8. Approximately 34.6% of the sample had received a *DSM-IV-TR* (or equivalent) diagnosis for an externalizing disorder (e.g., Conduct Disorder, Oppositional Defiant Disorder) and 21.8% were identified as having a substance abuse disorder. Roughly 14% of youths comprising the sample had been diagnosed as having a serious mental illness aside from a disruptive behavior disorder at some point in time (e.g., mood disorder, anxiety disorder, psychosis). These results were obtained only for youth for whom a diagnostic opinion had been provided on file and is likely to be an underestimate of the true base rate of mental health concerns in the sample. For instance, it is anticipated that many more youth in the current sample could have possibly met *DSM-IV-TR* criteria for an externalizing disorder, especially considering that 60.2% of participants had a previous criminal charge or conviction and 38.3% of youths had a prior history of violence (i.e., charge or conviction for a violent offense).

2.2 *Data Collection Sources*

The current study drew primarily on file information to rate the VRS-YV and data collection protocols. The files used were the youths' Court and Treatment files located at the CYP facility. The files varied in the volume of information they contained, with more

comprehensive files containing court ordered assessments, pre-sentence reports, psychiatric consults, psychological treatment summaries and progress notes.

2.3 *Materials*

The materials used for Study 1 consisted solely of the draft version of the VRS-YV (see Appendix A), VRS-YV score sheets (see Appendix B), and a data collection protocol that had been developed in collaboration with CYP (see Appendix E). (The data collection protocol is described in greater detail in Study 2, given that the variables coded will be used to examine the validity of the tool. The reader is directed to the section entitled *VRS-YV Project Data Collection Protocol* for additional information.)

2.3.1 *Violence Risk Scale: Youth Version (VRS-YV).* The VRS-YV (Lewis, Wong, & Gordon, 2004) is a recently developed 23-item clinician rated measure designed to assess adolescents' risk for violent offending and to inform and facilitate violence reduction interventions. The tool is comprised of 4 static and 19 dynamic items (see Table 2). Each item is rated on a 4-point scale from 0 to 3 according to broad descriptions of the construct measured by the item, with increasing values indicating greater prominence of the item in terms of its impact on the adolescent's risk for future violence. Static and dynamic items can be tallied separately to produce static and dynamic factor scores, and the factor scores can be combined to produce a total score representing the individual's current or pre-treatment risk.

The dynamic portion of the instrument is also designed to measure therapeutic change. Dynamic items that receive high ratings (2 or 3), are problem areas that require treatment (i.e., criminogenic needs), and are therefore considered treatment targets. Identified treatment targets receive a stage of change rating using a broad scoring rubric based on the adult VRS (see Table 1.3). At the end of treatment, the number of stages through which the

individual has progressed since the commencement of treatment is determined and change scores are computed. A change score of .5 corresponds to progression from one stage to the next, with change scores of 0, .5, 1.0, and 1.5 representing progression through 0, 1, 2, and 3 stages. Post-treatment item scores are calculated by subtracting the change score from pre-treatment dynamic item ratings. Post-treatment static and dynamic factor scores can be combined to produce a total score representing the individual's post-treatment risk.

2.4 *Procedure*

Firstly, judicial approval was obtained in lieu of obtaining consent from individual study pariticpants (in addition to approval granted by the University of Saskatchewan, the Saskatoon Health Region, and the provincial Ministry of Corrections, Public Safety, and Policing).

The writer was provided with the most recent draft version of the VRS-YV, which included a scoring manual, by the authors of the scale. She was granted access to several ($n = 5$) CYP files for the purposes of making pilot ratings in order to evaluate the ratability of the items. Minor revisions were made to the scoring manual by this writer in collaboration with two of the scale authors (Wong and Gordon) to resolve issues pertaining to scoring that had arisen during pilot testing. A VRS-YV scoring sheet and broad stage of change rubric was created based on the adult VRS (see Table 1.3 below) to facilitate scoring during the current investigation.

Table 1.3

Assessing change using the VRS-YV

Stage of Change	Description
Precontemplation	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.
Contemplation	Individuals in the contemplation stage are aware that a problem exists and are seriously thinking about overcoming it but relevant behavioral changes are not observable.
Preparation	The individual recognizes the problem area and appropriate behavioral changes are evident however, the changes tend not to be consistent over time or situations; lapses are likely to be quite frequent.
Action	Individuals modify their behavior, attitudes, and/or environment in order to overcome their problems. Observed changes have been consistent and stable over a significant period of time, but occasional lapses occur and changes have not been generalized to a variety of high risk situations.
Maintenance	In addition to the stability of changes over time, the maintenance stage is characterized by the generalization of changes to a variety of high risk situations that are relevant to the individual's offending behavior(s).

Participants were identified using CYP administrative records. A list of youth who had received services at CYP from 1994 to 2004, along with their index criminal charge(s), was derived and provided to the author. (The index change refers to the youth's most recent major admission (i.e., court ordered or other comprehensive psychological assessment) to the community mental health facility, and encompasses all charges and convictions for which the youth is in remand, on an undertaking, serving a period of probation, or in custody.) Youths were selected from this list in order from the earliest available entry to the most recent, based on the following criteria, and their files used to rate the study measures:

1) The youth had to have a criminal code violation (charge or conviction) for a violent offense. Broadly defined, a violent offense included any criminal charge or conviction for an offense against the person that has a high likelihood of resulting in death, injury, or deprivation. This category includes the actual and attempted use of physical violence (e.g., assault, weapons offenses), as well as threatening or fear inducing behaviors (e.g., robbery). The VRS-YV contains a series of static and dynamic risk markers that are uniquely related to non-sexual violence, and not necessarily sexual offending, although youth with sexual offenses as part of their index offense were included in the study.

2) The youth received assessment and/or treatment services from CYP. Other services provided through CYP (e.g., psychiatric consultations) do not typically generate reports with the type of information necessary to rate standardized forensic assessment instruments.

3) The file was sufficiently detailed in order to make comprehensive ratings of most of the items on the actuarial tools included in the study. Minimum inclusion criteria was operationally defined as the presence of one formal (i.e., typed and signed) report on file.

Those that failed to meet this minimum standard were immediately discarded. Files that were retained were rated for quality on a 3-point ordinal scale according to the following criteria:

- Adequate: Contains one of the following: a pre-sentence report, a psychological assessment report, or a treatment intake report.

- Comprehensive: Contains two of the three formal reports identified above.

- Most comprehensive: Contains two of the three formal reports identified above and some interview data was available. (While the writer did not interview any youth, in some cases the second rater had interviewed the youth, and some ratings had been done in the course of clinical duties).

The investigator rated all cases that met the inclusion criteria on the VRS-YV. A smaller number of randomly selected client files ($n = 23$) were rated blindly by a second independent rater to evaluate interrater reliability. The second rater was one of three individuals who attended two training sessions (prior to rating cases) facilitated by a clinical psychologist with specialized training and expertise in forensic psychology. They included a clinical psychologist, an educational psychologist, and a clinical social worker, all of whom were currently working with criminally involved youth in a clinical capacity at CYP. Independent ratings were made by these three individuals blind to the ratings of the principal investigator, and eventually compared to those of the principal investigator (i.e., two independent ratings compared across the 23 cases) after all such ratings were completed.

Finally, for a subset of cases ($n = 39$), it was possible to complete VRS-YV pre-treatment and post-treatment ratings. The same rater completed the VRS-YV pre-treatment

and VRS-YV post-treatment ratings for each case file, although VRS-YV pre-treatment ratings were completed before treatment related information was examined (this was facilitated by the existence of separate Court and Treatment files for each youth) and post-treatment ratings were completed prior to collecting any follow-up data. The treatment services provided to these youth most typically took the form of individual and sometimes group (e.g., Anger Management) based interventions delivered with the goal of reducing violent and aggressive behavior. For instance, some youths attended services through the High Risk Violent Young Offender Initiative (HRVYOI), which is an individualized treatment, case management, and supervision program for youths having a serious record of violence. Services tended to be cognitive-behavioral or psychoeducational in nature.

Collected information was coded primarily in quantitative format and entered into an electronic data file using the Statistical Package for the Social Sciences (SPSS). To be included in analyses, VRS-YV protocols were required to be at least 75% complete (i.e., no more than approximately 6 missing items) as this is a heuristic that has been commonly used when norming and validating forensic assessment measures (e.g., PCL-R; Hare 2003). VRS-YV total scores were prorated using a formula employed by its parent measure (VRS; Wong & Gordon, 1999) to take into account omitted items:

$$\text{Prorated Total Score} \quad = \quad \frac{\text{Total Score x 23}}{(23 \text{ minus the number of omitted factors})}$$

2.5 *Psychometric Analyses*

Following data collection, a series of psychometric analyses were conducted to evaluate the basic psychometric properties of the VRS-YV as hypothesized above. Analyses inlcuded: 1) Basic descriptive statistics including means, standard deviations, ranges, and

frequency histograms; 2) Item analyses of VRS-YV static and dynamic items; 3) Internal consistency and interrater reliability analyses; 4) A preliminary exploratory factor analysis of the entire scale to identify latent constructs underlying violence risk in youths.

2.5.1 *Item analyses.* A series of item analyses were performed including calculating VRS-YV item means and standard deviations, inter-item correlations, and item-total correlations. Psychometrically strong items would have moderate to high correlations with the scale total and individual items. According to established guidelines for the interpretation of correlational measures (e.g., Cohen, 1992), correlations in the $r = .30$ range are considered to be moderate in magnitude, whereas correlations around $r = .50$ are considered large.

2.5.2 *Reliability analyses.* The interrater reliability of the VRS-YV was examined on a randomly selected number of cases and evaluated by calculating the intraclass correlation coefficient (ICC). This correlation not only estimates the correlation among scores, but also accounts for differing anchor points among raters. In general, reliability coefficients in the range of $r = .70$ or higher are considered to be acceptable (Murphy & Davidshofer, 1994). Interrater reliability was further assessed based on the total number of coded items using the following criteria established from prior VRS reliability research (Burt, 2000; Wong & Gordon, 1996) in which at least 60% of item ratings were expected to be an exact match with the principle investigator and at least 95% of items were expected to be an exact match or only 1 point discrepant. Finally, the reliability of the VRS-YV was examined through internal consistency analyses using Cronbach's alpha, with high alpha values indicating uniformity in scale content.

2.5.3 *Exploratory factor analysis.* An exploratory factor analysis (EFA) was conducted to determine the latent variables (factors) comprising the VRS-YV. Procedures

were informed by previous research (e.g., Olver et al., 2007; Wong & Gordon, 2006) and "best practices" recommended by Costello and Osborne (2005). More specifically, a principal components extraction with varimax (orthogonal) rotation was initially used to estimate the number of factors (eigenvalues greater than 1). To reduce the number of factors extracted and to aid interpretation of the solution, a scree plot was generated. Based on the scree plot, principal axis factoring was used with promax (oblique) rotation to determine the optimal number of factors. Potential solutions were evaluated based on the following criteria: 1) results of the scree test; 2) examination of factor loadings (ideally, variables should load highly on a single factor with low loadings on all others); 3) magnitude of the correlations observed in the factor correlation matrix; 4) internal consistency of the derived factors; 5) visual inspection of the residual correlation matrix (generally, small residuals and few moderate to large residuals indicates a good fit); 6) total variance accounted for by the solution; and 7) interpretability of the solution.

3. Results

3.1 *Basic Descriptive Statistics*

Firstly, it warrants mentioning that the files varied in the volume of information they contained. The older files, in particular, were poorly organized, consisted largely of handwritten notes, did not consistently record potentially important details such as ethnicity/cultural background, and tended to include minimal information on treatment progress. Roughly one third of files failed to meet the minimum inclusion criteria and were immediately discarded from further analyses. The majority of these files were older cases. More recent and comprehensive files contained court ordered assessments, pre-sentence reports, psychiatric consults, psychological treatment summaries and progress notes. In fact, all files after 2002 met the inclusion criteria. This being said, many treatment referrals continued to contain limited information. Change ratings could only be made for a small subset of cases ($n = 39$) for which treatment data were available. These data will be examined in Study 2.

Of the files that were retained, 35 (26.3%) were rated as "adequate" (i.e., containing a pre-sentence report, psychological assessment report, or treatment intake report). Three of these cases were discarded and not included in additional analyses, as the VRS-YV protocols contained more than 6 missing items (e.g., Hare, 2003). Of the remaining cases, 70 (52.6%) were rated as "comprehensive" (i.e., containing both a pre-sentence report and a psychological report), and 28 (21.1%), were "most comprehensive" (i.e., interview data was available in addition to comprehensive file information). Thus, approximately three quarters of the files comprising the sample ($N = 133$) were rated as "comprehensive" or better.

Regarding missing data, approximately, 31.6% of VRS-YV protocols were complete and had no missing items, 40.6% were missing only one item, 13.5% were missing 2 items, 5.3% were missing 3 items, 4.5% were missing 4 items, 3% were missing 5 items, and 1.5% had 6 missing items.

Descriptive statistics and frequency histograms for VRS-YV scale components including static, dynamic, total, and change scores are presented below (see Table 1.4 and Figures 1.1-1.4). The average VRS-YV total score was approximately 44 ($M = 43.94$, $SD = 11.98$). An inspection of the frequency distribution of the VRS-YV scores further indicated that the sample had a wide range of scores (11.5 - 66.91, within a possible range of $0 - 69$), and a reasonably normal distribution with broadly normal kurtosis ($K = -0.453$, ns) and a mild negative skew ($S = -2.29$, $p = .011$); that is there was a larger concentration of individuals in the higher score range. As "conventional but conservative alpha levels (.01 or .001) are used to evaluate the significance of skewness and kurtosis with small to moderate samples" (Tabachnick & Fidell, 2001, p. 74), it was determined that the skewness did not deviate enough from normality to be significant. In sum, given that both significance tests fell outside of the conventional standards for significance recommended by Tabachnick and Fidell (2001), the size of the sample ($N = 133$), and the broadly normal shape of the distribution, this mild departure from normality would be unlikely to have substantive impact on subsequent analyses (Tabachnick & Fidell, 2001).

Finally, the average number of criminogenic needs (i.e., dynamic items rated as 2 or 3) per youth was 12.5 of a possible 19.

Table 1.4

Descriptive statistics for VRS-YV scale components

VRS-YV measure	Mean (SD)	Minimum	Maximum
Static	8.20 (2.62)	2.0	12.0
Dynamic	35.88 (9.99)	9.0	54.91
Total	43.94 (11.98)	11.5	66.91

Note: $N = 133$ on all measures. Uneven values for minimum and maximum scores reflect prorating used for missing items.

Figure 1.1

Frequency histogram of VRS-YV total scores

VRS-YV Total

Pro-rated VRS-YV Total

Std. Dev = 11.98
Mean = 44
N = 133.00
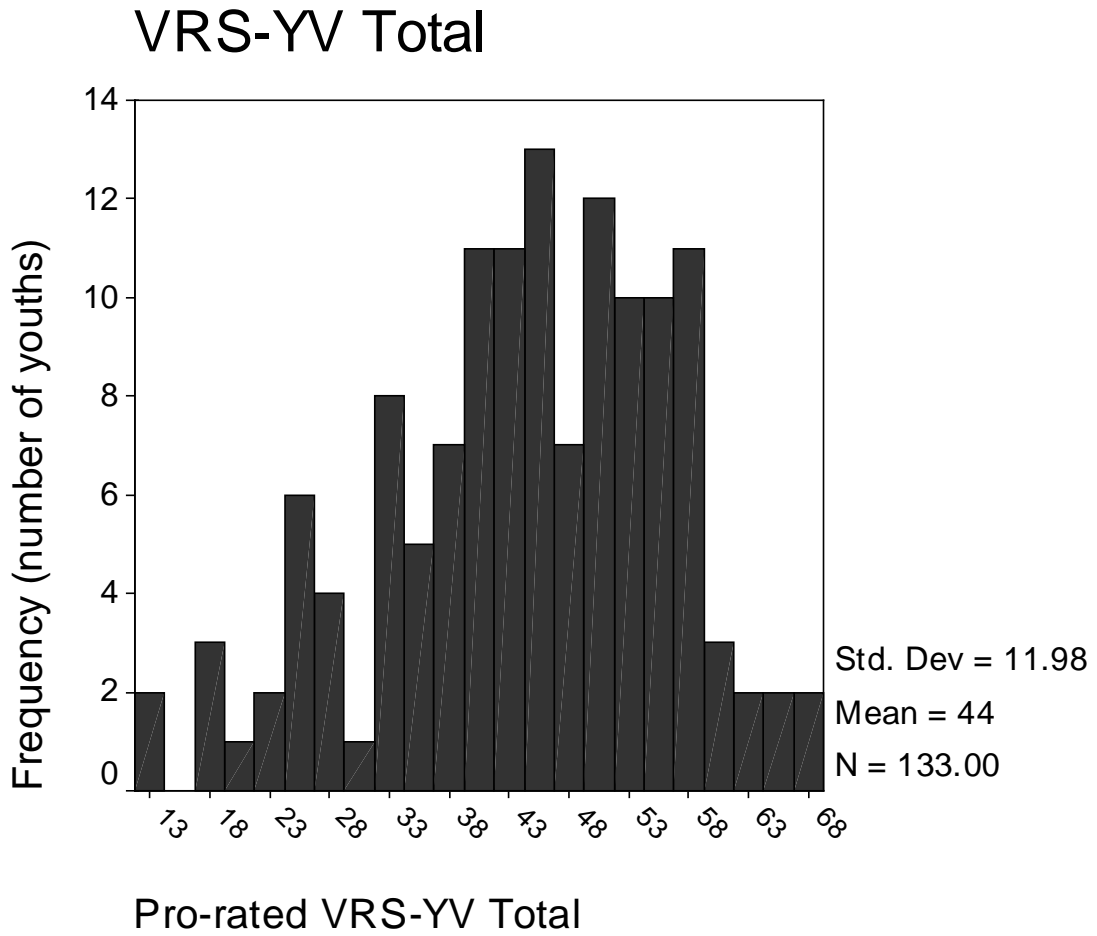
Figure 1.2

Frequency histogram of VRS-YV static total scores

VRS-YV Static Total

Std. Dev = 2.62
Mean = 8
N = 133.00

Frequency (number of youths)

Pro-rated VRS-YV Static Total
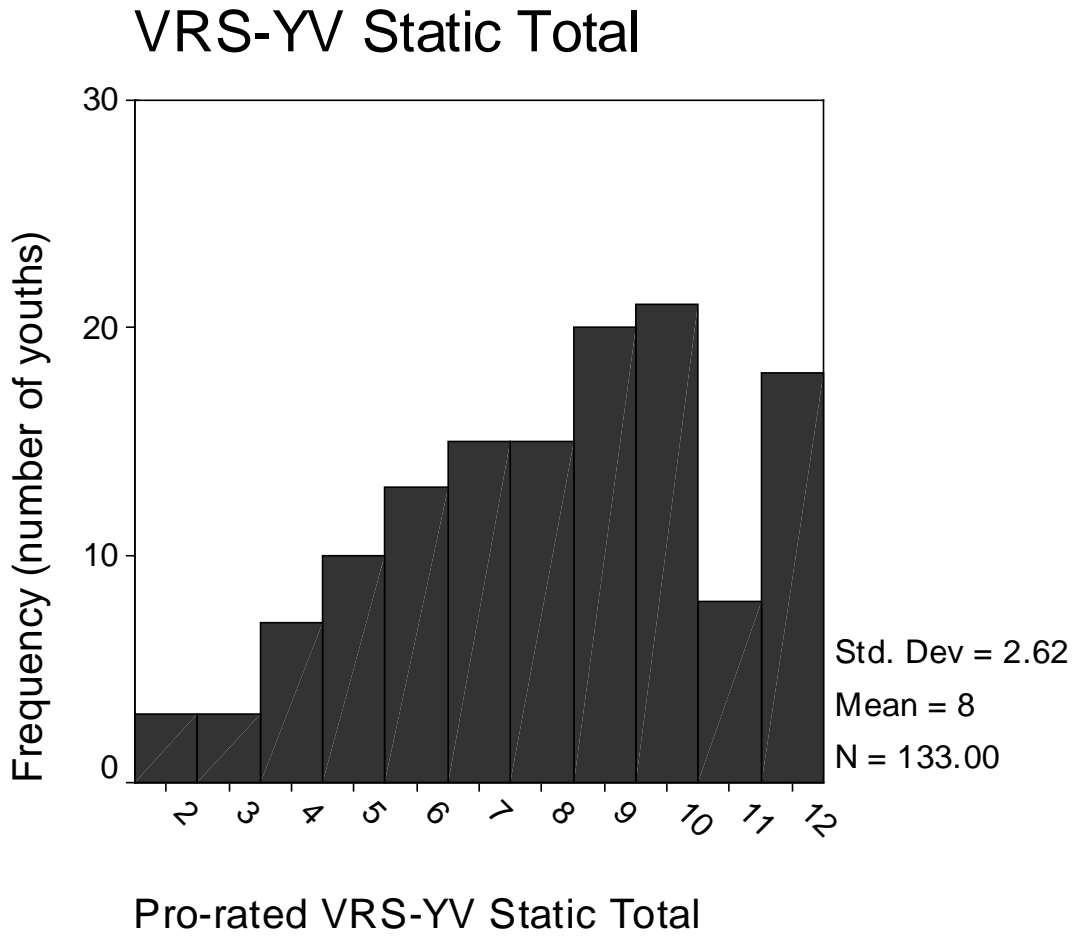
Figure 1.3

Frequency histogram of VRS-YV dynamic total scores

VRS-YV Dynamic Total

Std. Dev = 9.99
Mean = 36
N = 133.00

Pro-rated VRS-YV Dynamic Total
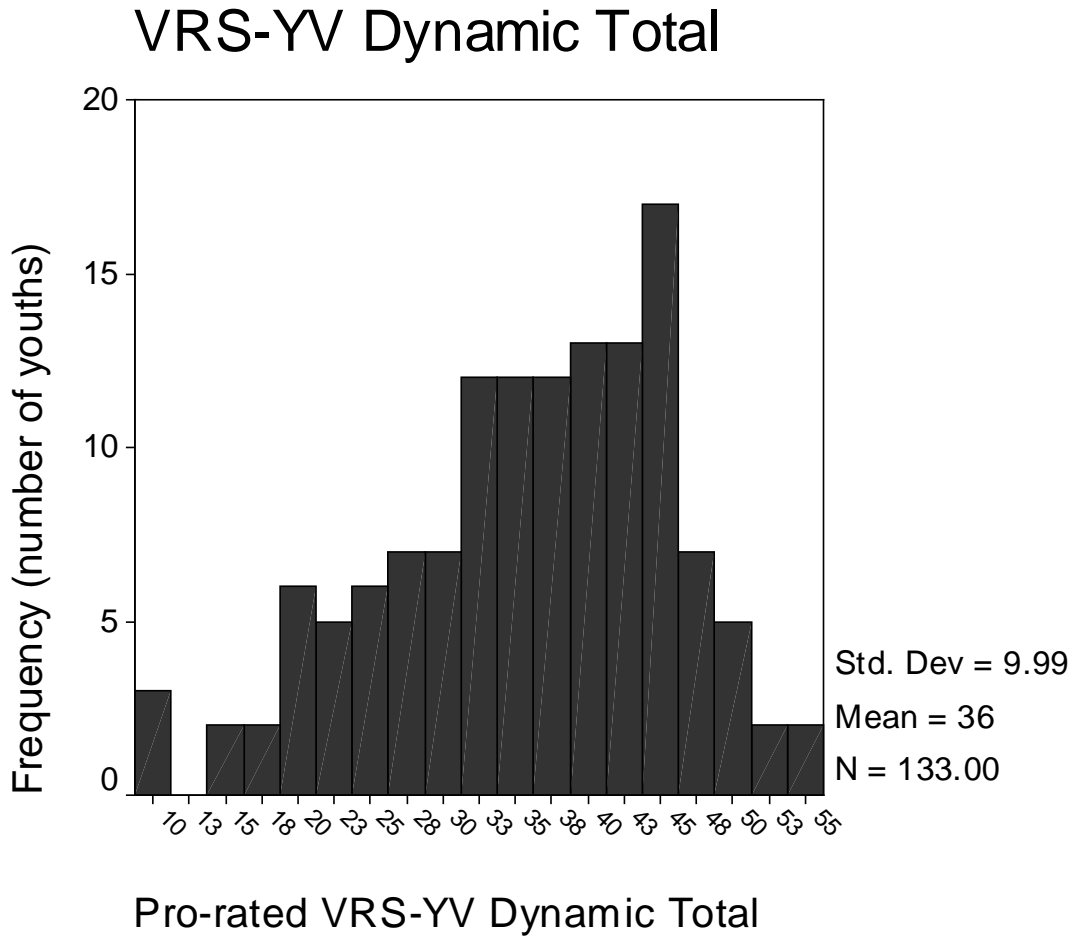
Figure 1.4

Frequency histogram of criminogenic needs as identified by the VRS-YV

VRS-YV Criminogenic Needs

Std. Dev = 3.80
Mean = 13
N = 133.00

Number of VRS:YV items that are Criminogenic
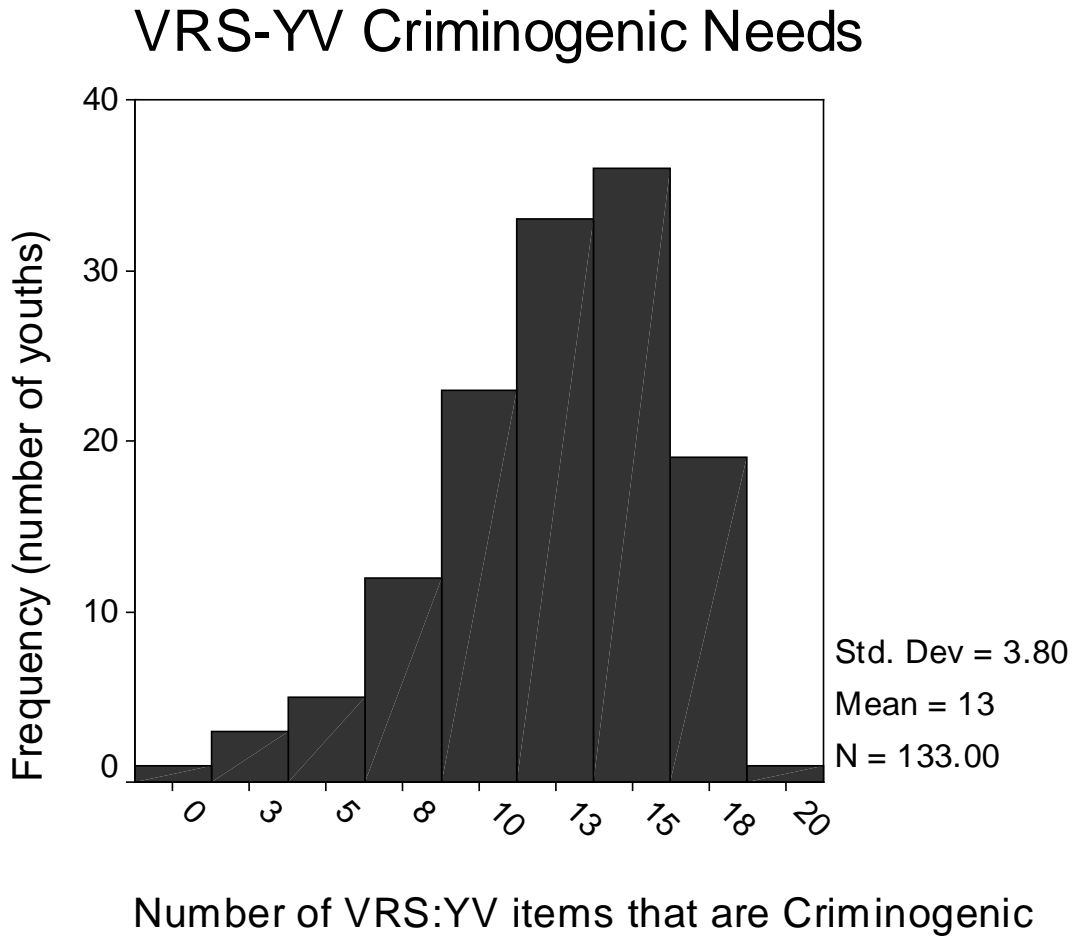
3.2 *Item Analyses*

A series of item analyses were conducted on the VRS-YV static and dynamic items (see Table 1.5). The majority of the items correlated between $r = .30$ and $.70$ with the entire scale. Two of the items correlated below $r = .30$; poor parent-child interaction ($r = .27$) and mental disorder ($r = .17$). Further examination revealed that these items had weak or negative correlations with other scale items. The remaining scale items had moderate to large correlations. The mean inter-item correlation was $r = .32$ (min $r = .17$, max $r = .71$).

3.3 *Internal Consistency and Interrater Reliability*

VRS-YV reliability was evaluated through three sets of analyses on the static, dynamic, and total scores. As outlined above, 23 randomly selected cases were chosen for interrater reliability analyses and rated by four raters (including the author). Two of these cases were rated as "adequate", 9 were "comprehensive," and 12 were "most comprehensive," meaning that they contained both file and interview data. Interrater reliability was observed for the VRS-YV static ($ICC = .87$), dynamic ($ICC = .89$), and total ($ICC = .90$) scores. The reliabilities of individual items were also examined via ICC (see Table 1.5), with item reliabilities ranging from $ICC = .17$ to $.99$. Second, reliability was evaluated by examining the frequencies with which a given item was given the same rating by two independent raters. Overall, 60.5% of the total items rated were an exact match, 33.4% of items rated were off by 1-point, 5.7% of items were off by two points, and 0.4% of items were off by three points. Finally, reliability was evaluated through internal consistency analyses, which evaluated the extent to which the scale components of the VRS-YV are measuring a homogeneous construct. The following Cronbach alphas were obtained: static ($\alpha = .74$), dynamic ($\alpha = .88$), and total score ($\alpha = .91$).

Table 1.5

Item analyses: Basic descriptive statistics, item-total correlations, and item reliability

VRS-YV item	Item mean	SD	Item-total correlation	Item interrater reliability (ICC)
S1 Early onset of antisocial behavior	1.63	1.10	.53	.74
S2 Criminality	2.39	0.60	.67	.82
S3 Instability in family upbringing	2.12	0.89	.53	.61
S4 Antisocial behavior in family	2.01	0.82	.67	.79
D1 Violent lifestyle	1.84	0.82	.78	.83
D2 Callous/unemotional	1.74	0.83	.43	.54
D3 Criminal attitudes	1.94	0.96	.72	.87
D4 Negative attitude toward education	1.93	0.78	.54	.83
D5 Antisocial peers	2.09	1.01	.48	.91
D6 Interpersonal aggression	2.26	0.71	.71	.62
D7 Poor emotional control	2.46	0.72	.47	.42
D8 Institutional violence	1.28	1.17	.55	.45
D9 Weapon use	1.42	1.14	.53	.86
D10 Insight	2.10	0.66	.44	.47
D11 Mental disorder	0.78	1.03	.17	.17
D12 Substance abuse	2.02	1.11	.46	.99
D13 Impulsivity/attention deficits	2.30	0.70	.55	.65
D14 Cognitive distortions	1.97	1.07	.58	.47
D15 Poor parent/child interaction	1.98	1.07	.27	.34
D16 Family stress	2.19	0.90	.33	.21
D17 Social isolation	1.92	0.91	.48	.54
D18 Community disorganization	1.53	1.13	.68	.78
D19 Poor compliance	2.12	0.90	.66	.77

3.4 *Exploratory Factor Analysis*

A preliminary exploratory factor analysis (EFA) was conducted on the VRS-YV static and dynamic items. The first step of EFA involved a principal components analysis (PCA) with varimax rotation in order to maximize variance accounted for, increase interpretability, and obtain an initial inspection of the solution. According to Tabachnick and Fidell (2001) an initial PCA can be helpful in estimating the number of factors. Five components were extracted with eigenvalues greater than one. As eigenvalues for the first two factors were larger than two, and changes in successive eigenvalues were small after the fifth factor, this was taken as evidence that there were between 2 to 5 factors.

Second, principal axis factoring (PFA) was used to extract successively fewer factors. Promax oblique rotation, in which "orthogonal factors are rotated to oblique positions" (Tabachnick & Fidell, 2001, p. 615), was used to rotate and interpret the factors extracted to allow for the possibility that the factors may be correlated. This approach to EFA, which takes precedence over the initial PCA, has been applied in adult research involving the adult variants of the VRS (Olver et al., 2007; Wong & Gordon, 2006).

A Kaiser-Meyer-Olkin Measure (KMO) test of sampling adequacy (which tests the factorability of the correlation matrix) generated a value of .877, which exceeds the minimal cutoff of .60 recommended by Tabachnick and Fidell (2001) for "good factor analysis" (p. 589). Although Bartlett's test was significant, χ^2 (253) = 1618.74, p = .001, Tabachnick and Fidell (2001) warn that this is a "notoriously sensitive test" and that "use of the test is recommended only if there are fewer than, say, five cases per variable" (p. 589). Given that subject-to-variable ratio in the present study is 133/23 = 5.8 to 1, relying on Bartlett's test to determine the factorability of the correlation matrix would seem to be contraindicated.

An examination of the scree plot (see Figure 1.5) and the pattern of the factor loadings (using a cutoff criterion of .32, as recommended by Tabachnick & Fidell, 2001, p. 625) suggested that an oblique three-factor solution provided the best fit to the data. Additional lines of evidence also suggested that a three-factor solution best fit the data. Specifically, the residual correlation matrix had a relatively small number (32%) of nonredundant residuals (i.e., absolute value > .05) for the three factor solution, while a two factor solution resulted in 47% nonredundant residuals, suggesting the three factor solution provided a closer fit to the data as there was a smaller discrepancy between the observed and reproduced correlation matrices. Finally, a Parallel Analysis (a statistically based procedure for determining the number of components) using the SPSS syntax from O'Connor (2000) confirmed the results from the scree plot, indicating that three components in the current dataset should be retained. Specifically the first three eigenvalues initially extracted as shown in the scree plot (which were 8.29, 2.61, and 1.76) were higher than the first three randomly generated eigenvalues using this procedure (which were 1.84, 1.69, and 1.58). The fourth factor extracted in the actual data (eigenvalue = 1.36) was smaller than the fourth randomly generated eigenvalue of 1.49.

The pattern matrix, in which the factor loadings represent the unique relationship between a given variable and the factor on which it loads, is presented in Table 1.6. The three factors were labeled Interpersonal Violence (initial eigenvalue = 8.29, rotated eigenvalue = 6.81, alpha = .87), Delinquency (initial eigenvalue = 2.61, rotated eigenvalue = 5.69, alpha = .84), and Family Problems (initial eigenvalue = 1.76, rotated eigenvalue = 4.07, alpha = .76). (See *Discussion* for the rationale behind these factor labels and descriptions of the latent constructs they appear to measure.)

The factors were correlated as follows: Interpersonal Violence and Delinquency, $r =$ .59; Interpersonal Violence and Family Problems, $r = .41$; Delinquency and Family Problems, $r = .27$. Descriptive statistics for scores on the three factors, generated by summing the items, are presented in Table 1.7.

Finally, cross loadings were observed for the following VRS-YV items (relevant factors are shown in brackets): Criminal attitudes (Delinquency and Interpersonal Violence), Violent lifestyle (Interpersonal Violence and Delinquency), Social isolation (Interpersonal Violence and Family Problems), Community disorganization (Delinquency and Family Problems), Callous/unemotional (Interpersonal Violence and Family Problems), and Negative attitude towards education (Interpersonal Violence and Delinquency). These cross loadings would seem to indicate that some items measure more than one latent construct underpinning violence risk.

Figure 1.5

VRS-YV scree plot
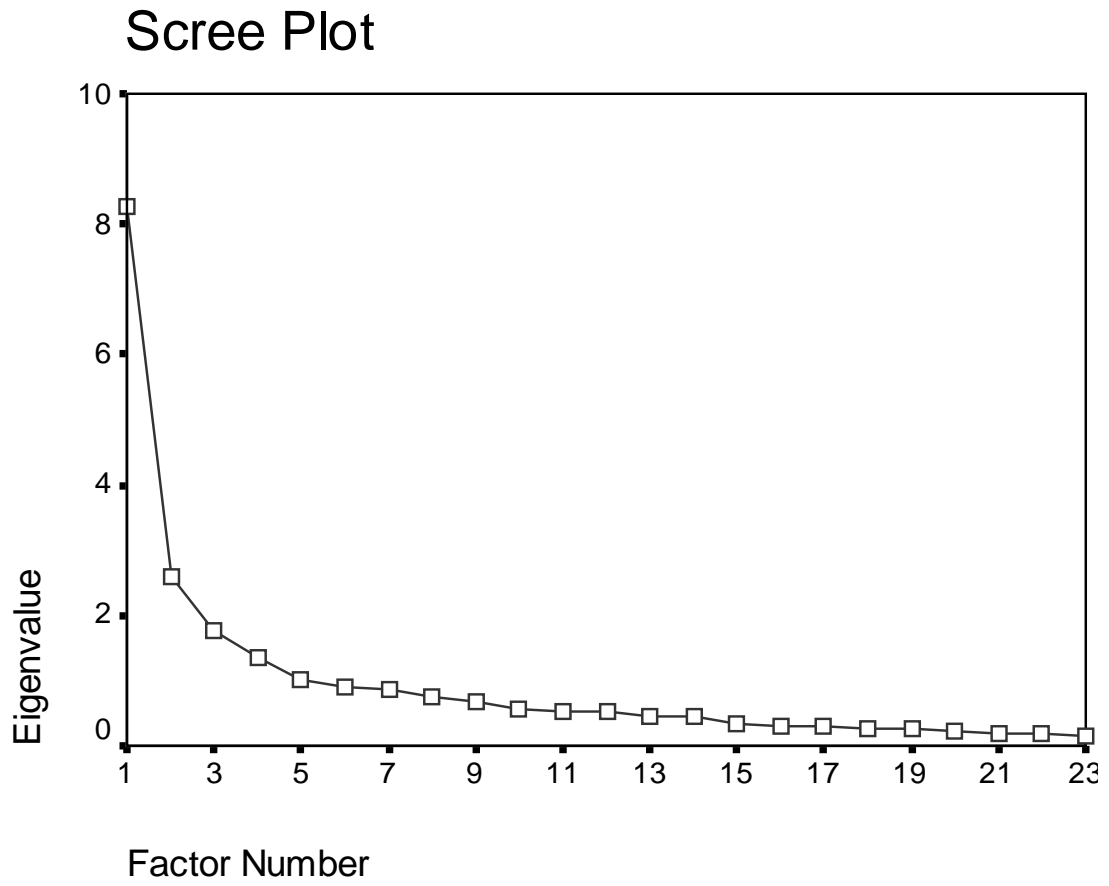
Table 1.6

Exploratory factor analysis: Pattern matrix

VRS-YV variable	Factor 1 Interpersonal violence	Factor 2 Delinquency	Factor 3 Family problems
D6 Interpersonal aggression	**.774**	-.029	.105
D10 Insight	**.750**	-.244	-.027
D14 Cognitive distortions	**.708**	.183	-.235
S1 Early onset of antisocial behavior	**.589**	-.077	.148
D8 Institutional violence	**.575**	-.037	.123
D2 Callous/unemotional	**.524**	.261	***-.330***
D1 Violent lifestyle	**.495**	***.409***	.073
D13 Impulsivity/attention deficits	**.481**	-.061	.265
D7 Poor emotional control	**.452**	-.141	.297
D17 Social isolation	**.450**	-.205	***.390***
D19 Poor compliance	**.416**	.303	.118
D9 Weapon use	**.389**	.265	-.018
D4 Negative attitude education	**.375**	***.320***	-.050
D5 Antisocial peers	-.225	**1.000**	-.064
D12 Substance abuse	-.215	**.822**	.092
S2 Criminality	.272	**.583**	-.014
D3 Criminal attitudes	***.487***	**.520**	-.129
D18 Community disorganization	.115	**.467**	***.368***
D16 Family stress	-.195	.071	**.744**
S3 Instability in family upbringing	-.040	.151	**.742**
S4 Antisocial behavior in family	.071	.232	**.706**
D15 Poor parent/child interaction	.013	-.045	**.506**
D11 Mental disorder	.170	-.278	**.380**

Note: Items loading are in bold. Cross-loadings are italicized.

Table 1.7

Descriptive statistics for VRS-YV derived factors

VRS-YV measure	Mean (SD)	Minimum	Maximum
F1 Interpersonal violence	24.97 (7.33)	6.5	38.0
F2 Delinquency	9.98 (3.85)	1.0	15.0
F3 Family problems	9.09 (3.30)	0.0	15.0

4. Discussion

The current study is the first of two studies designed to evaluate the psychometric properties of the VRS-YV. In Study 1, a series of psychometric analyses were conducted to examine the reliability, item properties, and factor structure of this newly developed tool.

Firstly, the sample comprising the current study constituted approximately two thirds of the available files and three cases were discarded owing to missing data. Although there is no particular reason to expect that the cases from the discarded files were systematically different from those cases in the files that were retained, little information was available for discarded cases and analyses examining possible differences could not be carried out.

Inspection of the frequency distribution of VRS-YV scores for the retained cases revealed that although the sample had a wide range of scores, the distribution of scores was slightly negatively skewed (as was the case in initial research investigating the validity of the parent instrument; Wong & Gordon, 2006). Moreover, the mean VRS-YV total, static, and dynamic scores were observed to be fairly high. Taken together, these findings would seem to suggest that the current sample is a fairly high risk-need sample of young offenders as assessed by the VRS-YV. In other words, a large concentration of participants was assessed as being moderate to high risk for violent reoffending on a small number of historical or static factors (e.g., criminal history, antisocial behavior in the family) and a larger number of putatively dynamic or potentially changeable factors (e.g., poor emotional control, interpersonal aggression) thought to be theoretically, conceptually, and/or empirically associated with violent recidivism. As high scores on VRS-YV dynamic items are also thought to reflect problem or need areas associated with violence to be targeted in violence reduction treatment, participants comprising the current sample were also assessed by the

VRS-YV as having many violence-specific criminogenic needs and potential treatment targets.

These findings were not particularly surprising, considering the study inclusion criteria (i.e., participants were required to have a violent index offense and must have received clinical services from a community mental health facility) and given what is known about the characteristics of the participants comprising the sample (e.g., the bulk of the participants had a history of criminal behavior and were serving a custodial disposition). Moreover, the findings appear consistent with the programming options that were available to these youth. For instance, 23% of the total sample was referred to a provincial program designed to treat high risk and violence-prone youth.

Thus, while the participants comprising the present sample do not appear unlike the clientele whom forensic practitioners (particularly those in the province of Saskatchewan) are often asked to provide risk assessments and implement violence reduction interventions, and for whom the VRS-YV was designed (e.g., violence-prone, high risk-need young offenders with criminal histories), the obtained results should be interpreted with caution given that a possible sampling bias cannot be ruled out and considering the variability in the data source and the amount of missing data.

In terms of the VRS-YV protocols, it is estimated that roughly 6% of the total data points were missing. Missing items were prorated using a formula employed by the parent measure (Wong & Gordon, 1999), which is equivalent to inserting the average item value on a case by case basis, and is one of several viable strategies (e.g., regression) identified by Tabachnick and Fidell (2001) to handle missing data. However, one possible concern with this approach is that it is an imperfect estimate of the actual value, and could serve to inflate

inter-item correlations, particularly for those items that have greater amounts of missing data (e.g., Community Disorganization). This criticism is tempered by the fact that the amount of missing data is close to the 5% guideline to be considered small as suggested by Tabachnick and Fidell (2001), and is well below the 10% cutoff for acceptability of missing data as recommended by Nunnally and Bernstein (1994).

The extent to which the findings can be generalized may also be limited by the idiosyncratic features and characteristics of the current sample. This being said, the present sample is also comprised of certain young offender groups for which research data is relatively scant including, females, Aboriginal youth, and outpatient referrals to community mental health services. Nevertheless, all subsequent analyses should be interpreted with these limitations in mind.

An additional limitation is the archival nature of the study. Although some interview data were available for a small number of cases (roughly 20%), previous research has shown that reliable and valid (e.g., predictive validity) ratings can be achieved through file information alone (Wong, 1984; 1988).

In terms of reliability, repeated measurements (i.e., two independent ratings) made on the same subjects were available for a sizeable portion (17%) of the sample. High intraclass correlation coefficients (ICCs) were obtained for VRS-YV static, dynamic, and total scores (ICC = .87 static, .89 dynamic, .90 total) and according to the categories recommended by Fleiss (1986) the observed reliability would be considered "excellent" (i.e., ICC > .75). Moreover, in 93.9% of the ratings, the ratings differed by no more than 1 point (the least amount of error possible). This degree of item reliability closely mirrors the results obtained for the adult VRS as reported in Wong and Gordon (2006). Taken together, the

results suggest that trained independent raters with different backgrounds and varying levels of clinical experience with young offenders could reliably rate the VRS-YV on the current sample and hence, supports the tool's interrater reliability. (It is also possible that the obtained results may represent a conservative estimate of reliability, as between-rater variation may have contributed to the total variance between ratings).

Reliability was further evaluated through internal consistency analyses. Large alpha coefficients (α = .74 static, .88 dynamic, .91 total) point to a high level of internal consistency (e.g., Murphy & Davidshofer, 1994), which would suggest that the scale components of the VRS-YV are measuring a homogeneous construct (e.g., violence risk). (A similar pattern has been observed with the adult VRS - VRS static item total, dynamic item total, and total were .69, .94, and .93, respectively; Wong & Gordon, 2006). While the relatively lower coefficient for the static section of the VRS-YV may, in part, reflect greater heterogeneity of item content, it is also likely to be influenced by the small number of items comprising this component of the scale.

Preliminary evidence for the internal consistency of the tool is further corroborated by the results of item analyses, where the majority of items had moderate to large item-total correlations (between r = .30 and .70) with the entire scale, indicating that the "items measure the same thing that is being measured by the test" (Murphy & Davidshofer, 1994; p. 159). Only two of the items correlated below r = .30 (e.g., Nunnally & Berstein, 1994); Poor parent-child interaction (r = .27) and Mental disorder (r = .17). The latter finding is consistent with the adult literature (i.e., a VRS item-total correlation of r = .08 was obtained for mental disorder; Wong & Gordon, 2006) and similarly indicates a minimal relationship between major mental disorder and violence risk in the present sample. This was not

unexpected given that the present sample contained only a small number of youth (n = 19) with serious mental health problems. Moreover, this item only receives a high rating when there is a clear link between mental disorder and violence and does not merely indicate the presence of a mental disorder. Most importantly, the interrater reliability of this item is also low (*ICC* = .17). While there are several possible explanations for this result (e.g., information relevant to rating this item may be difficult to locate in the file and may be of poor quality, concerns related to the item description) factors that may be undermining the reliability of this item remain unknown. The same may also apply to the low reliability observed for the Family stress item (*ICC* = .21), although this too remains unclear.

Further, examination of inter-item correlations subsequently revealed that the same two items - Poor parent-child interaction and Mental disorder - had weak correlations with other scale items. While it is possible that these items are measuring a different underlying construct, again, issues pertaining to low base rates of high scores and poor quality of available information cannot be ruled out. This being said, the majority of items had moderate to large inter-item correlations, and well exceeded the .20 guideline for an acceptably high inter-item correlation suggested by Nunnally and Bernsterin (1994). As such, the majority of VRS-YV items appear to be measuring a common underlying construct (i.e., violence risk).

To further identify multiple constructs underlying violence risk as measured by the VRS-YV, an exploratory factor analysis was conducted. Converging lines of evidence suggested that an oblique three-factor solution provided the best fit to the data. The three factors were labeled Interpersonal Violence, Delinquency, and Family Problems.

The label Interpersonal Violence was chosen for the first factor given that much of the item content seemed specific to violence and aggression. For instance, the highest loading item was Interpersonal aggression, followed by cognitions related to violence (e.g., Cognitive distortions), affective problems (e.g., Callous/unemotional) and lifestyle/behavior patterns (e.g., Violent lifestyle) associated with disruptive and violent behavior (e.g., Violent lifestyle).

The label Delinquency was chosen for the second factor given that the item content appeared to reflect general criminal behavior and included three of the "big four" (Andrews & Bonta, 2003) covariates of criminal conduct (e.g., antisocial peers, criminal history, and attitudes supportive of crime). Although one of the items (Antisocial peers) comprising this factor had a loading of 1.0, which can indicate an overextraction of factors, both rule of thumb procedures and statistical analyses demonstrated that three factors appeared to best fit the data. As such, one possible interpretation of this exceptionally high loading is that the Antisocial peers item is a "marker variable." According to Tabachnick and Fidell (2001), "Marker variables are highly correlated with one and only one factor, and load on it regardless of extractional and rotational technique. Marker variables are useful because they define clearly the nature of a factor; adding potential variables to a factor to round it out is much more meaningful if the factor is unambiguously defined by marker variables to begin with" (p. 587). This seems plausible, given that this variable is one of the "big four" covariates of criminal conduct.

The third factor was labeled Family Problems, as the highest loading item on this factor was Family stress, and other constituent items seemed related to problems and issues in family functioning linked to violent behavior (e.g., antisocial behavior in the family,

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unstable upbringing, poor parent child interaction). It was also noted that the Mental disorder item also loaded cleanly on this factor. Although speculative, this finding would seem consistent with contributions from systems theory (e.g., Bronfenbrenner, 1979) and current treatment approaches (e.g., MST; Heneggler et al., 1998), in that the loading pattern may reflect the importance of the parent child relationship and the link between child psychopathology and family dysfunction. As such, it might also not be completely unexpected that Community disorganization and Social isolation cross load on this factor.

Cross loadings were also observed for the VRS-YV items: Criminal attitudes, Violent lifestyle, and Negative attitude towards education, with all three loading on both the Interpersonal Violence and Delinquency factors. These cross loadings would seem to indicate that a few VRS-YV items measure more than one latent construct underpinning violence risk. Tabachnick and Fidell (2001) refer to variables with cross-loadings as "complex variables" (p. 587), given that they correlate with multiple factors. This may result for various reasons including variables that measure more than one latent construct (as suggested above) or rather, could be perhaps due to idiosyncratic sample characteristics. Further cross-validation research would be required to elucidate the factor structure, the potential meaning of the complex variables, and any implications this may have for the psychometric integrity of certain items comprising the VRS-YV.

Finally, scrutiny of the individual items loading on the three factors derived from an exploratory factor analysis of VRS (Wong & Gordon, 2006) suggests some similarities with the results from factor analysis of the VRS-YV. For instance, the pattern of item loadings for the Interpersonal Violence factor is similar to the pattern of item loadings for the first factor identified by Wong and Gordon (2006). Similarly, the pattern of item loadings for the

Delinquency factor also bears some resemblance to the second factor obtained in the Wong and Gordon (2006) factor analysis. Finally, the Family Problems factor appears unique to the VRS-YV, which seems plausible, especially given many of these are new and developmentally specific.

Overall, the three factors described above accounted for a substantive portion of the variance (48%) and seemed to be measuring coherent constructs as demonstrated by the magnitude of their eigenvalues and alphas, as well as few observed cross loadings. It is important to reiterate, however, that these results are highly exploratory and the sample size, although adequate, is less than ideal (e.g., 300 cases have been described as "good" and 500 as "very good" in Tabachnick & Fidell, 2001). However, according to Costello and Osborne (2005) "Strict rules regarding sample size for exploratory factor analysis have mostly disappeared. Studies have revealed that adequate sample size is partly determined by the nature of the data. In general, the stronger the data, the smaller the sample can be for accurate analysis." (p. 4). While these initial results show promise they require replication on a larger independent, and perhaps more representative, sample.

Limitations notwithstanding, the preceding analyses appear to offer preliminary support for the inter-rater reliability, internal consistency, and factorial validity of the VRS-YV. Item-analyses also demonstrated acceptable psychometric properties for both static and dynamic items. As such, the criterion-related validity of the tool, including its convergent, postdictive, and predictive validity, will be examined in Study 2: Extension and Validation of the VRS-YV. Change data and their correlates will also be explored.

STUDY 2: EXTENSION AND VALIDATION OF THE VRS-YV

1. Hypotheses

Again, the following hypotheses regarding the VRS-YV's criterion-related validity were informed by the existing literature on current youth and adult risk assessment instruments, including the VRS-YV's parent instrument, the Violence Risk Scale (VRS; Wong & Gordon, 2006) as reviewed earlier. Overall, it was anticipated that the VRS-YV would demonstrate significant convergent, postdictive, and predictive validity, with a level of performance comparable to established youth risk assessment instruments and the parent instrument from which it was derived.

1.1 *Convergent/construct validity.* It was predicted that the VRS-YV will have strong convergent validity with established risk assessment instruments (i.e., PCL-YV and YLS/CMI) as demonstrated by large, positive, significant correlations between measures.

1.2 *Risk and gender.* It was originally predicted that male and female young offenders would not have significantly different scores across the three risk measures; however, this hypothesis was discarded given the following rationale. Although a test of equivalence could be conducted, a paper by Cribbie, Gruman, and Arpin-Cribbie (2004) that describes methods of applying tests of equivalence in detail, advises that use of common tests of equivalence (e.g., Schuirmann Test of Equivalence) requires the identification of a "critical mean difference," that is "primarily dependent on a subjective "level of confidence" with which to declare two (or more) populations equivalent" (p. 3). In this case, however, establishing a critical difference would be arbitrary as there is no precedent or benchmark in risk assessment research on which to base a possible critical difference (especially one that is scientifically and clinically meaningful) between male and female youths on these forensic

instruments or their scale components. Rather, published peer reviewed articles have typically examined these differences through MANOVA (as will be the case here) or other univariate techniques (e.g., Schmidt, Hoge, & Gomes, 2005; Schmidt, McKinnon, Chattha, & Brownlee, 2006). Indeed, further research identifying possible recommendations for identifying critical differences for tests of equivalence in forensic assessment would be well warranted.

1.3 *Risk and ethnicity.* It was predicted that Aboriginal youths will have significantly higher scores on the three risk measures and their respective scale components than non-Aboriginal youths.

1.4 *Postdictive validity.* The VRS-YV, PCL-YV, and YLS/CMI were anticipated to have postdictive validity by way of a significant positive relationship with violent and general offending history. In addition, the pre-treatment rated dynamic factors were expected to evidence a stronger relationship to offending history than the post-treatment rated factors.

1.5 *Predictive validity.* The VRS-YV, PCL-YV, and YLS/CMI were expected to have significant predictive accuracy for violent and general recidivism as exemplified by: (1) significant correlations between risk measures and outcome; and (2) Receiver Operating Characteristics (ROC) analyses yielding Areas Under the Curve (AUC values) significantly greater than .50. In particular, it is hypothesized that the post-treatment rated dynamic factors will evidence stronger relationships to outcome than the pre-treatment rated dynamic factors.

1.6 *Predictive validity and gender.* It was anticipated that the VRS-YV will predict violence for both male and female youth.

1.7 *Predictive validity and age.* The VRS-YV was expected to predict violence in identified adolescent age groups (i.e., early adolescence and late adolescence).

1.8 *Predictive validity of static and dynamic items.* It was hypothesized that the static and dynamic factors will jointly predict violent recidivism. Furthermore, it was anticipated that the static and dynamic factors will have significant unique relationships to violence (i.e., incremental validity).

1.9 *Risk classification.* A successful risk classification scheme was expected to be developed for the VRS-YV. This scheme should have a strong linear relationship between risk level and violent recidivism, with increasing rates of violent recidivism for each successive risk category.

1.10 *Survival analysis.* Higher risk groups as identified by the VRS-YV were predicted to have higher and faster rates of general and violent recidivism than lower risk groups, as illustrated by survival analysis.

2. Method

2.1 *Participants*

The same participants (*N* = 133) comprising the sample described in Study 1 are included in Study 2. As such, this information is not repeated here. The reader is directed to *Participants* in the Method section of Study 1 for details.

2.2 *Data Collection Sources*

The current study drew primarily on file information and official records. Data was collected from two sources: 1) Court and Treatment files located at the CYP facility (as described in Study 1); and 2) Corrections Public Safety and Policing (CPSP) database which contains records of court-adjudicated dispositions and sentencing information for young offenders in the Province of Saskatchewan.

2.3 *Materials*

In addition to the VRS-YV protocols used in Study 1, the materials for Study 2 included user manuals and rating protocols for two commonly used youth forensic assessment instruments - the Psychopathy Checklist: Youth Version (PCL-YV) and Youth Level of Service/Case Management Inventory (YLS/CMI)

2.3.1 *Violence Risk Scale - Youth Version (VRS-YV).* Please see instrument description in the *Materials* section of Study 1.

2.3.2 *Psychopathy Checklist: Youth Version (PCL-YV).* The PCL-YV (Forth, Kosson, & Hare, 2003) is a 20-item symptom construct rating scale designed to assess youth aged 12-18 years on several behavioral and personality characteristics associated with psychopathy. Each item is scored on a 3-point scale from 0 to 2, with possible scores ranging from 0 to 40. Higher scores reflect a greater number of psychopathic traits as well as increasing risk for

general and violent recidivism (e.g., Forth et al., 2003; Gretton et al., 2001; Gretton et al., 2003). (See Appendix C for PCL-YV score sheet.)

2.3.3 *Youth Level of Service/Case Management Inventory (YLS/CMI).* The YLS/CMI (Hoge & Andrews, 2003) is a 42-item clinician rated measure designed to assess risk/need characteristics of young offenders across 8 criminogenic domains (i.e., Prior and current offenses/dispositions, Education/employment, Family circumstances/parenting, Leisure/ recreation, Peer relations, Attitudes/orientation, Substance abuse, and Personality/behavior). Each item on the YLS/CMI is coded as either present or absent. Present items are summed to give a total score, with possible scores ranging from 0 to 42. Higher scores indicate a greater risk for continued criminal activity. This instrument has been found to be a strong predictor of general recidivism in young offender populations (e.g., Catchpole & Gretton, 2003; Jung & Rawana, 1999). Normative data exists for adjudicated youth aged 12-17 years. (See Appendix D for YLS/CMI score sheet.)

2.3.4 *VRS-YV Project Data Collection Protocol.* A data collection protocol was drafted in collaboration with CYP, in order to collect data from CYP files in several relevant topic areas such as: basic demographics; relevant psychosocial information; and offending related data (including information pertaining to the index offense, criminal history, and recidivism) (see Appendix E). Key variables to be coded and/or calculated by this protocol are operationalized as follows:

2.3.4.1 *Violent offense*. A violent offense includes any criminal charge or conviction for an offense against the person that has a high likelihood of resulting in death, injury, or deprivation. As such, this category includes the actual and attempted use of physical violence (e.g., homicide-related offenses, various assault offenses, weapons offenses), as well as

threatening/fear inducing behaviors (e.g., arson, robbery). This definition is largely consistent with Quinsey et al.'s (1998) definition which includes, homicide, attempted homicide, armed robbery, kidnapping, forcible confinement, wounding, assault causing bodily harm, assault, and sexual assault involving physical contact, however, in the current study, all robbery offenses were considered violent. As it has been pointed out by Wong and Gordon (2006) that the victim is usually present in a robbery and would likely suffer psychological harm. Thus, the current definition is consistent with Wong and Gordon (2006) and extant research on the VRS family of risk assessment tools.

2.3.4.2 *Index sentence*. The index sentence refers to the youth's most recent major admission (i.e., court ordered or other comprehensive psychological assessment) to the community mental health facility following a violent offense and encompasses all charges/convictions for which the youth is in remand, on an undertaking, serving a period of probation, or in custody (i.e., index offenses).

2.3.4.3 *Criminal history*. Includes all criminal charges and convictions prior to the index offense(s).

2.3.4.4 *Release date*. The date the youth was released from custody. If the youth has received a period of probation, the release date would be the index (i.e., most recent) sentencing date.

2.3.4.5 *Recidivism*. Any disposition for an offense that occurred following the index sentencing date that occurred prior to the youth's 18th birthday (i.e., while he or she was still a young offender). This definition was used given that adult recidivism data were unavailable in the current database. As such, only youth recidivism was investigated, recorded, and analyzed.

2.3.4.6 *Violent recidivism.* Any disposition for a violent offense that occurred following the index sentencing date and prior to the youth's 18th birthday.

2.4 *Procedure*

As Study 2 is an extension of the first study, the reader is directed to the *Procedure* section of Study 1 for initial procedures. Additional procedures specific to Study 2 are outlined below.

The investigator used information from CYP client files to rate all four measures (i.e., VRS-YV, PCL-YV, YLS/CMI, and the VRS-YV Project Data Collection Protocol) on each participant. A smaller number of randomly selected client files (n = 23) were rated blindly by the same three independent raters described in Study 1 following the same procedures, in order to evaluate interrater reliability. Collected information was coded primarily in quantitative format and entered into an electronic data file using the Statistical Package for the Social Sciences (SPSS).

Missing data were prorated according to guidelines provided in the user's manual for the PCL-YV (Forth et al., 2003) or by inserting the mean score (as was done for the VRS-YV in Study 1.) (See *Procedure* section in Study 1 for additional information).

After all ratings were completed and entered into SPSS, the youth's identifying information was sent to an employee of CPSP, who in turn, identified youth with offense/disposition information present in an electronic database. The database does not include adult reconviction data and follows youth up to their 18th birthday or the date of data collection (April 2008), whichever came first. All data collection activities were overseen by a senior manager. Recidivism data were provided to investigator in the form of an Excel spreadsheet.

Older files (i.e., from 2002 and earlier) were not available electronically, as the system was not initiated until April 2003. Given the potential difficulties inherent in locating hard copies of youths' offense history, it was decided to proceed with analyses on the available sample of youths ($n = 62$).

2.5 *Data Analyses*

2.5.0 *Data screening and examination of assumptions.* Building upon Study 1, which addressed missing data, conducted tests of normality, and examined the factorability of the correlation matrix and adequacy of sample size for analyses (e.g., factor analyses), additional data screening procedures designed to examine adherence to statistical assumptions for univariate and multivariate analyses were conducted as part of the analyses for Study 2. As recommended by Tabachnick and Fidell (2001), these included an attention to possible univariate (e.g., $z > 3.29$) and multivariate (Mahalanobis distance > 3 SD above mean) outliers, tests of linearity (e.g., to ensure independent variables were correlated or linearly related) and multicollinearity (e.g., to ensure independent variables were not too highly correlated such as $r = .90$ or higher), and homogeneity of variance (e.g., as observed through a non-significant Box's *M* statistic, or through non-significant results in Levene's test of equality of error variances in MANOVA).

2.5.1 *Convergent/construct validity.* The VRS-YV was correlated with established risk assessment instruments (PCL-YV and YLS/CMI) as a means evaluating its convergent validity; that is, the extent to which this collection of risk instruments are measuring similar constructs (e.g., violence risk potential). Convergent validity will be demonstrated by large, positive, significant correlations between the measures.

2.5.2 *Risk and gender.* One way ANOVAs were conducted in order to compare male and female youths on the three risk measures and their respective scale components.

2.5.3 *Risk and ethnicity.* One way ANOVAs were conducted in order to compare Aboriginal and non-Aboriginal youths on the three risk measures and their respective scale components. Cohen's *d* (1992) was computed as a measure of effect size, with values of .20 considered "small," .50 "medium," and .80 or higher "large."

2.5.4 *Postdictive validity.* Prior to evaluating predictive accuracy, the VRS-YV's ability to postdict criminal history was examined by correlating individual scale components and composite factors with documented offending history. As was mentioned earlier. according to established guidelines for the interpretation of correlational measures (Cohen, 1992), correlations in the .30 range are considered to be moderate in magnitude whereas an *r* of .50 is considered to be large. However, after an extensive review of correlations culled from psychology, medicine, and everyday life, Meyer et al. (2001) conclude that it is challenging to achieve uncorrected univariate correlations that are much above .30. (Even the axiom that past behavior produces future behavior is reported to produce a correlation of only *r* = .39!) Consequently, Meyer et al. (2001) recommended that psychologist's studying complex human behavior should desist from relying on "unrealistic benchmarks". Rather, they should be "satisfied" when they identify correlations among independently measured constructs that range in magnitude from .10 to .19, "pleased" when they attain correlations ranging from .20 to .39, and "rejoice" when they find correlations exceeding the .40 barrier. Stated simply, postdictive validity will be demonstrated by moderate to large, positive, significant correlations as determined by statistical analyses and informed by the extant

literature. The same holds for correlational measures of predictive validity (to be discussed below).

2.5.5 *Predictive accuracy.* The predictive accuracy of the PCL-YV, YLS/CMI, and VRS-YV (including individual scale components, derived factors, total scores), with respect to outcome measures of general and violent recidivism (including yes/no any new disposition), was investigated using point-biserial correlations, and Receiver Operating Characteristics (ROC) analyses. The Area Under the Curve (AUC) will be calculated as an index for interpreting the overall predictive accuracy independent of sample size, base rates, and selection ratios (Mossman, 1994a). Areas can range from 0 (perfect negative prediction) to .50 (chance prediction) to 1 (perfect prediction). A given area represents the probability that a randomly selected recidivist will obtain a higher score on the risk prediction instrument than a randomly selected non-recidivist (Douglas et al., 1999; Mossman & Somoza, 1991; Mossman, 1994a; Mossman, 1994b; Rice, 1997; Rice & Harris, 1995; Quinsey et al., 1998). The strength of the obtained AUCs will be determined through comparison with AUCs in the published literature. For instance, in a quantitative review of 58 violence prediction data sets, Mossman (1994a) reported average AUCs ranging from .60 to .80. More specifically, Rice and Harris (1995; 1997; 1998) reported an AUC of .76 between the Violence Risk Appraisal Guide (VRAG) and violence in a sample of forensic psychiatric patients. This AUC value is approximately equivalent to a Cohen's (1992) *d* score of 1.00, which is a large effect size.

Although there appears to be no strong consensus as to the proper interpretation of AUC estimates for predictive validity, it has been proposed that AUCs should be interpreted as follows: 0.55 to 0.63 = small effect size, 0.64 to 0.70 = medium effect size, 0.71 and higher = large effect size (see Rice & Harris, 2005). Studies examining the predictive

accuracy of well-established forensic risk assessment instruments (e.g., VRAG) have typically reported AUCs between 0.70 and 0.80.

The magnitude of correlational measures will be evaluated using the guidelines discussed above (see section entitled "Postdictive validity"). However, Rice and Harris (1995) remind us that correlation is a function of the base rate. For example, when the base rate of recidivism (e.g., percentage of youths receiving a new violent conviction) is .12, an r of .30 qualifies as large. Recidivism base rates for the proposed sample will be computed through conducting frequency analyses on binary recidivism variables (e.g., yes/no any new conviction, yes/no any new violent conviction).

2.5.6 *Gender considerations in predictive accuracy.* The predictive analyses outlined above were conducted separately for male and female youths.

2.5.7 *Development considerations in predictive accuracy.* To evaluate the generalizability of the VRS-YV's predictive accuracy for different age cohorts, a median split of the youth age variable was used create two extreme groups (i.e., early adolescent vs. late adolescent) and the predictive analyses outlined above wer repeated.

2.5.8 *Logistic regression analyses.* Logistic regression was performed in order to examine the relative predictive accuracy of VRS-YV static and dynamic factors. (1) The Wald statistic was used to determine whether the static and dynamic factors together significantly predict outcome. (2) Exponentiated regression coefficients (i.e., *Exp(B)* was used to evaluate the unique relationships of the static and dynamic factors to outcome. The *Exp(B)* coefficient is an odds ratio statistic representing the predicted change in hazard for each unit increase in the predictor variable. Coefficients above 1.0 indicate a positive relationship to the criterion (i.e., as risk score increases, recidivism increases).

2.5.9 *Development of risk categories.* A risk classification scheme was developed for the VRS-YV by: (1) examining the percentile ranks, standard deviations, and frequency distribution of total scores; (2) establishing "rough" risk cutoffs; (3) using chi-square analyses to test the independence of proposed risk groups; and (4) correlating the proposed risk groups with recidivism (phi correlation). Risk categories that successfully discriminate among different levels of risk, will have a strong linear relationship between risk level and violent recidivism, with increasing rates of violent recidivism for each successive risk level. For instance, individuals scoring *high* on the measure would have higher violent recidivism rates than those individuals scoring *moderate* or *low*.

2.5.10 *Survival analyses.* In the area of forensic risk assessment, the statistical technique of survival analysis graphs the cumulative proportion of individuals who have not recidivated (but rather "survived') over a specified follow-up period. Thus, in addition to illustrating which risk groups recidivate in greater proportions relative to other risk groups, survival curves illustrate the rate of occurrence of that event (Luke & Homan, 1998). In the proposed study, follow-up time was calculated by subtracting the recidivism date (or if the youth has not re-offended, the data collection date), from the release date. Survival curves were then computed for both general and violent recidivism for each VRS-YV risk level. Survival curves were also generated for the PCL-YV and YLS/CMI. Survival analyses using the Life Tables method were used to determine the proportion of survivors at various times and survivor functions, as well as to conduct group and pairwise comparisons. Differences in survival were tested using chi-square analyses. According to Luke and Homan (1998), a number of nonparametric tests can be used to test whether groups differ in their survival

probabilities. Each of these tests compares the number of terminal events actually observed to the number of expected terminal events for each time t in the study.

3. Results

3.0 *Data Screening and Brief Descriptive Statistics*

Basic screening procedures recommended by Tabachnick and Fidell (2001) revealed few violations of assumptions. Two cases were potential multivariate outliers using Mahalanobis distance across 43 variables (23 VRS-YV items and the 20 scale components); however, these cases were retained given that their pattern of scores on the three risk assessment measures were acceptable. A second concern involved the homogeneity of variance which will be further addressed during reporting of MANOVA results.

Prior to describing the primary results, basic statistics for the YLS/CMI and PCL-YV that may be of interest are reported. Ratings were completed on 99.4% of items for the YLS/CMI and on 93.8% of items for the PCL-YV. Interrater reliability information was obtained for 23 randomly selected cases as follows: YLS/CMI, *ICC* = .92; PCL-YV, *ICC* = .91. Basic means and standard deviations were obtained for the total scores of the YLS/CMI ($M = 25.5$, $SD = 7.6$) and PCL-YV ($M = 21.7$, $SD = 7.7$).

3.1 *Convergent/Construct Validity*

The construct validity of the VRS-YV (i.e., the extent to which it actually measures the construct of violence risk) was examined through computing a large number of convergent validity correlations among the three risk measures and their scale components.

The broad concurrent validity of the VRS-YV is summarized in Table 2.1. Static, dynamic, and total scores are all significantly correlated with aggregate PCL-YV and YLS/CMI scores (*r'* s = .63 to .85). Correlations were then computed between VRS-YV scores and the individual scale components of the YLS/CMI (see Table 2.2) and PCL-YV (see Table 2.4).

As illustrated in Table 2.2, the static and dynamic components of the VRS-YV were each significantly correlated with the individual criminogenic needs of the YLS/CMI. Examination of the three factors extracted in Study 1, further revealed that the Delinquency factor appeared to have the greatest convergence with the criminogenic need dimensions of the YLS/CMI, with the Interpersonal Violence factor also showing strong convergence, and the Family Problems factor showing less convergence. It is worth noting, however, that Family Problems evidenced a fairly large, significant correlation with the Family/parenting dimension ($r = .67$) of the YLS/CMI. More detailed information (i.e., correlations between individual VRS-YV items and the criminogenic needs of the YLS/CMI) can be found in Appendix F (see Table 2.3).

VRS-YV scale components were also correlated with the factors of the PCL-YV, as shown in Table 2.4. While the dynamic items appeared to be slightly more highly correlated with each factor of the PCL-YV, both components of the VRS-YV were more highly correlated with factors 3 (Behavioral) and 4 (Antisocial), than with factors 1 (Interpersonal) and 2 (Emotional) of the PCL-YV.

Among the three VRS-YV factors, the Interpersonal Violence factor was most highly correlated with the factors of the PCL-YV, followed by Delinquency. The largest difference in the magnitude of the convergent validity correlations was in the observed relationships between these two factors and the personality dimension (factors 1 and 2) of the PCL-YV. In contrast, the Family Problems factor showed relatively weak convergence with the scale dimensions of the PCL-YV. More detailed information (i.e., correlations between individual VRS-YV items and the PCL-YV factors) can be found in Appendix F (see Table 2.5).

Finally, significant group differences on VRS-YV dynamic items for youth scoring above and below the cutoff conventionally used to diagnose psychopathy (PCL-YV total score ≥ 30) are as follows (see Figure 2.1 caption for chi square results): Violent lifestyle, Callous/unemotional, Criminal attitudes, Institutional violence, Weapon use, and Poor compliance. Although youth scoring above the cutoff scored higher on all dynamic items, with the exception of these six items, these differences did not maintain significance after using a Bonferroni correction to control familywise error ($\alpha = .05/19 = .003$).

Table 2.1

Correlations between VRS-YV measures and two youth forensic measures

VRS-YV measure	PCL-YV total score	YLS/CMI total score
Static	.63**	.66**
Dynamic	.79**	.85**
Total	.79**	.85**

Note: N = 133, ** p < .01. PCL-YV = Psychopathy Checklist-Youth Version, YLS/CMI = Youth Level of Service/Case Management Inventory.

Table 2.2

Correlations between VRS-YV measures and YLS/CMI criminogenic domains

VRS-YV measure	YLS/CMI criminogenic domain							
	O/D	F/P	E/E	PR	SU	L/R	P/B	A/O
Static	.53	.53	.41	.46	.29	.35	.48	.35
Dynamic	.58	.47	.57	.66	.48	.49	.62	.53
Total	.60	.50	.56	.64	.47	.49	.61	.52
F1 Interpersonal violence	.53	.35	.57	.57	.30	.43	.63	.54
F2 Delinquency	.65	.38	.50	.70	.69	.46	.36	.44
F3 Family problems	.24[a]	.67	.25[a]	.32	.20[b]	.26[a]	.39	.24[a]

Note: all correlations significant at $p < .001$, with the exception of [a] $= p < .01$, [b] $= p < .05$. YLS/CMI = Youth Level of Service/Case Management Inventory, O/D = Offenses/dispositions, F/P= Family/parenting, E/E = Education/employment, PR = Peer relations, SU = Substance abuse, L/R = Leisure/recreation, P/B = Personality/behavior, A/O = Attitudes/orientation.

Table 2.4

Correlations between VRS-YV measures and PCL-YV factors

VRS-YV measure	PCL-YV factor			
	1	2	3	4
Static	.31	33	.53	.65
Dynamic	.34	.56	.76	.76
Total	.35	.54	.75	.77
F1 Interpersonal violence	.42	.64	.70	.76
F2 Delinquency	.27	.41	.72	.70
F3 Family problems	.08[NS]	.11[NS]	.33	.31

Note: all correlations significant at $p < .001$, with the exception of [NS] = not significant. PCL-YV = Psychopathy Checklist-Youth Version, Factor 1 = Interpersonal, Factor 2 = Emotional, Factor 3 = Behavioral, Factor 4 = Antisocial.

Figure 2.1

Dynamic risk profile of the study sample: Percent rated with a dynamic item rated

criminogenic (2 or 3) for High PCL-YV (n = 26) versus Low PCL-YV youth (n =117).
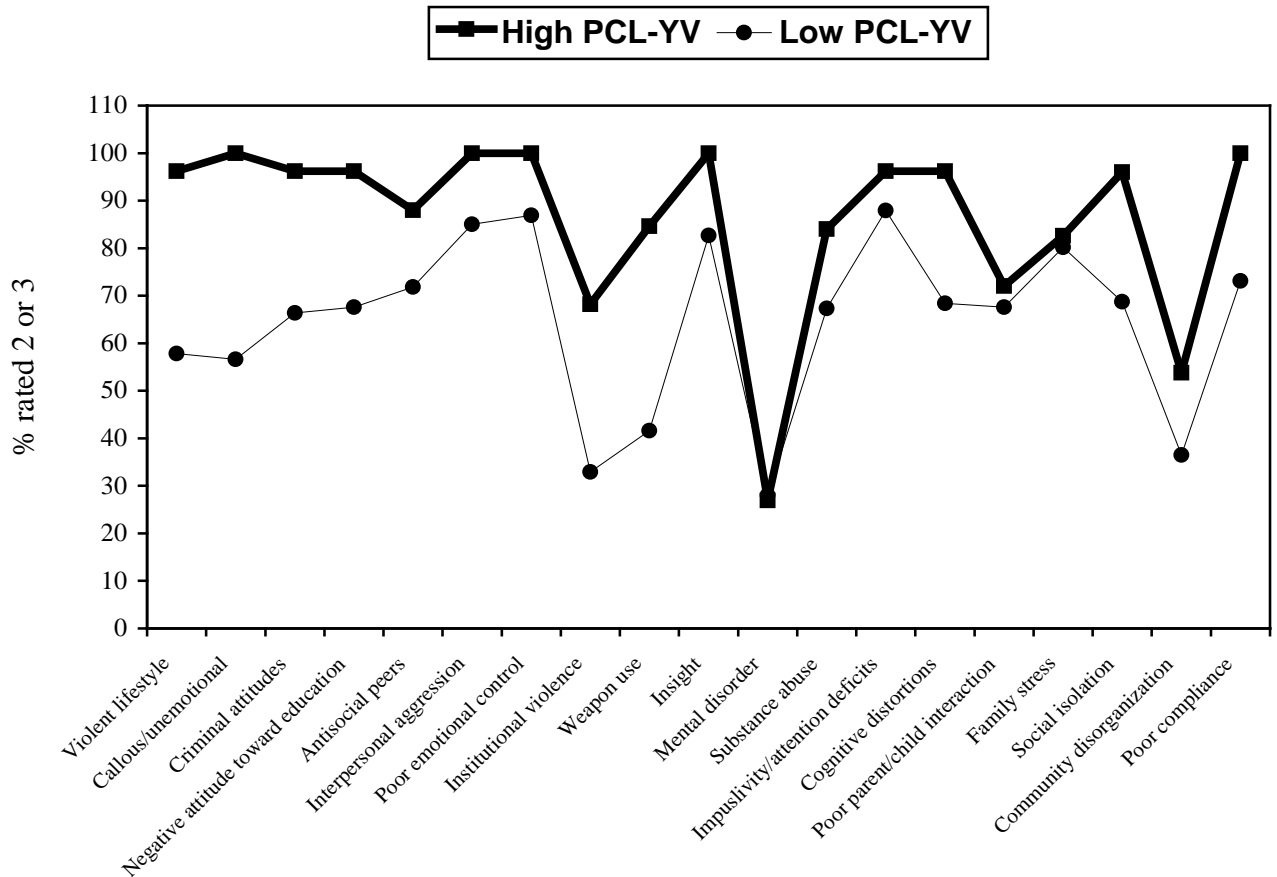
Note: PCL-YV = Psychopathy Checklist-Youth Version. *Chi square results as follows (Bonferroni correction used to evaluate significance, α = .05/19 = .003):* Violent lifestyle, χ2 (*N* = 133, *df* = 1) = 13.50, *p* < .001; Callous/unemotional, χ2 (*N* = 132, *df* = 1) = 17.32, *p* < .001; Criminal attitudes, χ2 (*N* = 133, *df* = 1) = 9.25, *p* = .002; Negative attitudes toward education, χ2 (*N* = 131, *df* = 1) = 8.67, *p* = .003; Antisocial peers, χ2 (*N* = 128, *df* = 1) = 2.80, *ns*; Interpersonal aggression, χ2 (*N* = 133, *df* = 1) = 4.42, *p* < .05; Poor emotional control, χ2 (*N* = 133, *df* = 1) = 3.80, *p* < .06; Institutional violence, χ2 (*N* = 104, *df* = 1) = 8.96, *p* = .003; Weapon use, χ2 (*N* = 127, *df* = 1) = 15.32, *p* < .001; Insight, χ2 (*N* = 130, *df* = 1) = 5.22, *p* < .05; Mental disorder, χ2 (*N* = 129, *df* = 1) = 0.01, *ns;,* Substance abuse, χ2 (*N* = 129, *df* = 1) = 2.70, *ns*; Impulsivity/attention deficits, χ2 (*N* = 133, *df* = 1) = 1.53, *ns*; Cognitive distortions, χ2 (*N* = 121, *df* = 1) = 8.24, *p* = .004; Poor parent/child interaction, χ2 (*N* = 130, *df* = 1) = 0.18, *ns*; Family stress, χ2 (*N* = 124, *df* = 1) = 0.07, *ns*; Social isolation, χ2 (*N* = 124, *df* = 1) = 7.78, *p* = .005; Community disorganization, χ2 (*N* = 76, *df* = 1) = 1.36, *ns*; Poor compliance, χ2 (*N* = 130, *df* = 1) = 8.92, *p* = .003.

3.2 *Comparisons on Risk Measures by Gender and Ethnicity*

Several analyses were conducted to examine differences as a function of gender and ethnicity on the three risk measures. First, one-way ANOVAs were conducted to examine group differences between males and females on scale components of the VRS-YV, YLS/CMI, and PCL-YV. However, few significant differences were observed and those that emerged (VRS-YV Family Problems factor, YLS/CMI domains of Substance abuse and Leisure/recreation) were small in magnitude and would fail to attain significance using Bonferroni corrections. Moreover, few substantive differences emerged between the groups with respect to individual risk/need domains. (See Table 2.6 in Appendix F for more detailed information, including means, standard deviations, *F* statistics, and effect size calculations).

A second set of ANOVAs were conducted examining differences on the subscales of the three instruments between Aboriginal and non-Aboriginal youth. Several significant differences emerged between the two groups after implementing a Bonferroni correction, (.05/20 = .0025) that were large terms of effect size. Specifically, Aboriginal youth had significantly higher YLS/CMI, PCL-YV, and VRS-YV total scores than the non-Aboriginal youth (see Table 2.7a), as well as on most of the individual scale components (see Table 2.7b in Appendix F for more detailed information). Also of interest, however, are those risk/need domains across the three measures in which no significant differences were observed, which included the Family Problems factor of the VRS-YV and Family/parenting dimension of the YLS/CMI, the Interpersonal and Emotional factors of the PCL-YV, as well as the Personality/behavior and Attitudes/orientation dimensions of the YLS/CMI. Large differences were otherwise observed in problem areas such as substance abuse, criminal and delinquent behavior, employment and education, and having antisocial peers.

Table 2.7a

Comparisons on forensic youth measures between Aboriginal (n = 84) and non-Aboriginal

(n = 32) youth

Measure	Aboriginal	Non-Aboriginal *M (SD)*	Total	*F*	Cohen's d
VRS-YV					
Static	9.0 (2.4)	6.7 (2.4)	8.4 (2.6)	21.52*	.87
Dynamic	39.6 (8.2)	28.8 (10.5)	36.6 (10.1)	33.82*	1.08
Total	48.7 (9.8)	34.8 (11.9)	44.8 (12.1)	40.59*	1.19
PCL-YV					
Total	24.0 (6.5)	18.0 (8.3)	22.3 (7.5)	16.51*	.76
YLS/CMI					
Total	28.3 (6.8)	20.1 (8.5)	26.0 (7.8)	32.51*	1.07

Note: * $p < .0025$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Finally, a 2 (male versus female) X 2 (Aboriginal versus non-Aboriginal) MANOVA was conducted for the three risk measures and their scale components. All scale components were examined for each instrument, including the VRS static, dynamic, and total scores as well as the three broad factors, in light of the exploratory nature of the factor analysis and possible clinical and research applications of the findings. Given that SPSS eliminates any case with missing data, 112 cases were available for analysis: 22 male non-Aboriginal, 33 male Aboriginal, 9 female non-Aboriginal, and 48 female Aboriginal. The assumption of homogeneity of variance-covariance matrices was tested through Box's M statistic, which was significant, $F (420, 13671. 46) = 1.58$, $p < .001$, and as such, Pillai's criterion was used to evaluate multivariate significance as recommended by Tabachnick and Fidell (2001) when Box's test is significant and sample sizes are unequal.

MANOVA tests for significant main effects between groups on a given independent variable and corrects for familywise error. A significant main effect indicates the presence of at least one significant group difference on the dependent variables. In addition, MANOVA enables testing interaction effects between two or more independent variables on a given dependent variable.

The descriptive statistics are presented for male and female Aboriginal and non-Aboriginal youths on the dependent measures are presented in Table 2.8. The results for the tests of between subjects effects for Gender and Ethnicity, as well as the possible presence of an interaction for each dependent variable, are presented in Table 2.9.

Significant main effects were found for both Gender, $F (20, 89) = 2.47$, $p < .01$ and Ethnicity, $F (20, 89) = 4.09$, $p < .001$, as well as a significant Gender x Ethnicity interaction, $F (20, 89) = 2.18$, $p < .01$. As illustrated in Table 2.9, Gender differences only emerged for

the YLS/CMI risk/need domains of Substance abuse and Leisure/recreation. With respect to Ethnicity, significant differences were observed on the same measures as identified in the univariate analyses, with Aboriginal youths scoring higher than non-Aboriginal youths. Finally, significant Gender x Ethnicity interactions emerged for several of the dependent measures, including components of the VRS-YV (Dynamic, Total score, Interpersonal violence, delinquency), PCL-YV (Behavioral, Antisocial, Total score), and YLS/CMI (Offenses/dispositions, Substance abuse, Leisure/recreation, Personality/ behavior, Total score).

To assist in interpreting the meaning of these significant interactions, profile plots for YLS/CMI, PCL-YV, and VRS-YV total scores were examined and are presented in Figure 2.2a. (Additional profile plots for the interaction analyses can be found in Appendix F: Figures 2.2 to 2.4).

A simple visual inspection of the plots, especially in which the results are significant, revealed that Aboriginal males tend to score the highest on a given measure or scale component. Indeed the differences between Aboriginal and non-Aboriginal male youths are substantial, being more than one standard deviation on average, as shown in Table 2.8. However, the differences between Aboriginal and non-Aboriginal female youths are much smaller, and in several cases nonexistent. (This observation is further corroborated by their scores on the three measures, as reported in Table 2.8). The possible implications and meaning of these findings are explored in greater detail in the Discussion section to follow.

Table 2.8

Specific comparisons on forensic youth measures as a function of gender and culture:

Descriptive statistics (N = 112)

Measure	Male		Female	
	Aboriginal	Non-Aboriginal	Aboriginal	Non-Aboriginal
		M (SD)		
VRS-YV				
Static	9.6 (2.4)	6.5 (2.4)	8.6 (2.4)	7.1 (2.7)
Dynamic	42.7 (7.3)	25.9 (10.8)	37.4 (8.4)	35.0 (6.9)
Total	52.7 (8.5)	31.5 (11.9)	45.9 (9.9)	41.9 (9.0)
F1 Interpersonal violence	30.4 (5.9)	19.4 (8.2)	25.1 (6.2)	24.3 (3.6)
F2 Delinquency	12.4 (2.9)	5.9 (3.7)	10.9 (2.9)	8.3 (4.1)
F3 Family problems	8.3 (2.9)	6.9 (2.7)	9.2 (2.8)	8.7 (3.3)
PCL-YV				
F1 Interpersonal	2.7 (2.1)	2.4 (2.2)	1.8 (1.8)	2.2 (1.6)
F2 Emotional	5.4 (2.1)	4.0 (2.6)	4.3 (2.0)	3.9 (2.0)
F3 Behavioral	8.2 (1.7)	4.5 (2.6)	7.3 (2.0)	6.9 (2.0)
F4 Antisocial	8.3 (1.9)	4.3 (2.4)	6.3 (2.3)	5.4 (1.6)
Total	27.0 (6.2)	16.9 (9.1)	21.9 (6.3)	20.7 (6.3)
YLS/CMI				
Offenses/dispositions	3.6 (1.5)	1.1 (1.7)	2.7 (1.7)	1.8 (1.3)
Family/parenting	3.5 (1.7)	3.0 (1.7)	4.0 (1.7)	3.6 (1.7)
Education/employment	4.7 (1.8)	2.9 (2.2)	4.1 (1.8)	3.4 (1.9)
Peer relations	3.4 (0.9)	2.2 (1.4)	3.4 (0.9)	3.0 (1.4)
Substance abuse	4.2 (1.2)	2.0 (1.7)	4.2 (0.8)	3.2 (1.3)
Leisure/recreation	2.2 (0.6)	1.4 (1.1)	2.2 (0.6)	2.2 (0.7)
Personality/behavior	4.6 (1.2)	3.4 (1.9)	4.3 (1.1)	4.7 (1.2)
Attitudes/orientation	3.2 (1.3)	2.6 (1.7)	2.7 (1.3)	2.4 (1.1)
Total	29.7 (6.8)	18.5 (9.3)	27.6 (5.6)	24.1 (5.5)

Note: PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Table 2.9

Results of 2 (Gender) x 2 (Ethnicity) MANOVA on forensic youth measures (N =112)

Measure	Gender between subjects test	Ethnicity between subjects test	Gender x ethnicity interaction
	F statistic		
VRS-YV			
Static	0.13	17.49***	2.35
Dynamic	0.90	24.06***	13.74***
Total	0.60	30.53***	14.52***
F1 Interpersonal violence	0.03	38.60***	12.05***
F2 Delinquency	0.40	39.11***	7.00**
F3 Family problems	3.70	2.05	0.60
PCL-YV			
F1 Interpersonal	1.10	0.00	0.54
F2 Emotional	1.29	4.02	0.88
F3 Behavioral	2.64	20.40***	12.72***
F4 Antisocial	0.82	24.17***	10.42***
Total	0.11	13.71***	7.66**
YLS/CMI			
Offenses/dispositions	0.09	21.92***	4.15*
Family/parenting	1.48	1.23	0.01
Education/employment	.00	8.00**	1.92
Peer relations	3.10	11.61***	2.77
Substance abuse	5.40*	35.54***	5.46*
Leisure/recreation	5.31*	5.90*	6.97**
Personality/behavior	3.02	2.69	6.48*
Attitudes/orientation	0.93	1.83	0.24
Total	1.36	22.60**	6.22*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Figure 2.2a

MANOVA Gender x Ethnicity interaction plots for YLS/CMI, PCL-YV, and VRS-YV total

scores
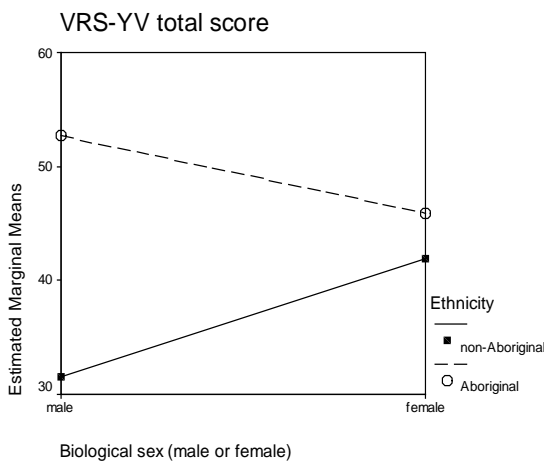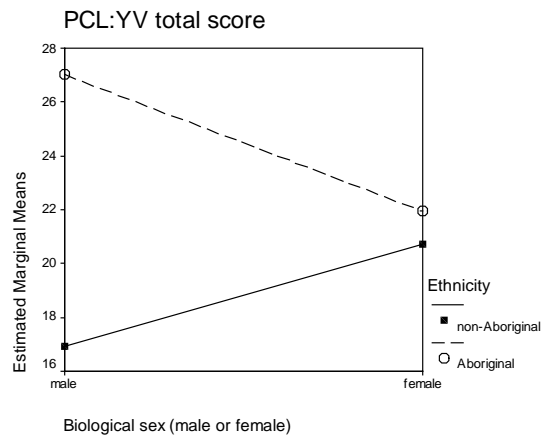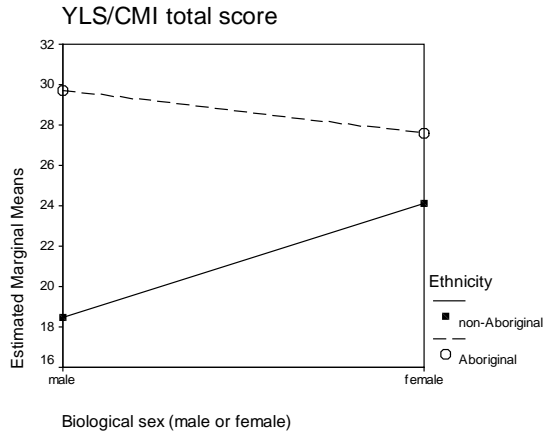
3.3 *Postdictive Validity*

Sufficient offense history data was available to code any prior nonviolent charge/conviction for 118 cases and any prior violent charge/conviction for 114 cases. In total, 80 (68%) of the youths were officially charged/convicted for any offense and 51 (45%) for a violent offense. Given that the youth comprising the sample all have a violent index offense, 45% could be considered repeat violent offenders.

The postdictive validity of the three risk measures was examined by computing correlations and ROC analyses for any prior offense and any violent offense. Significant correlations and AUCs would indicate that youth who happen to be repeat violent offenders (or who had effectively recidivated by incurring their index offense), have higher scores on a given measure than first time violent offenders. The same logic would apply with respect to general offending.

The results of postdictive validity analyses for the three risk measures are presented in Tables 2.10 and 2.11. As illustrated in Table 2.10, all three measures were significantly associated with prior violent and general offending. Correlations and AUC values were slightly higher for general than for violent offending, and overlapping confidence intervals were observed within each offense category for the AUCs between the instruments.

Similar findings emerged for the postdictive validity of the individual scale components of the three measures, with some notable exceptions (see Table 2.11). While the VRS-YV Interpersonal Violence and Delinquency factors showed strong postdictive validity for violent and general offending, the Family Problems factor and the Family/parenting dimension on the YLS/CMI evidenced weak and frequently non-significant postdictive validity (this was also observed for the Leisure/recreation dimension on the YLS/CMI). All

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remaining components of the YLS/CMI and the PCL-YV significantly postdicted violent and general offending.

Likewise, the individual static and dynamic items of the VRS-YV were each correlated with violent and general offending history. As illustrated in Table 2.12, significant postdictors of violence included, Criminality, Antisocial behavior in family, Violent lifestyle, Callous/unemotional, Criminal attitudes, Negative attitudes toward education, Antisocial peers, Institutional violence, Weapon use, Substance abuse, Impulsivity/attention deficits, Cognitive distortions, and Poor compliance. Most of these items also postdicted general offending, with the exception of Antisocial behavior in the family and Impulsivity/attention deficits. Additional items postdicting general offending included, Early onset of antisocial behavior, Interpersonal aggression, and Community disorganization.

The results of similar analyses are presented in Figure 2.5. Chi square analyses were conducted to compare the frequency of youths with prior violent offenses who scored a '2' or '3' on a given dynamic item (i.e., for whom the item was criminogenic), to youths without such a history, but for whom the item was also criminogenic. The results of chi square analyses on these two dichotomous variables ("yes-no 2 or 3 rating" and "yes-no prior violence") are summarized in the figure caption. A Bonferroni correction was implemented at $\alpha = .05/19 = .003$. Compared to first time violent offenders, repeat violent offenders were more likely to have the following items criminogenic: Criminal attitudes, Antisocial peers, Substance abuse ($p = .005$), and Poor compliance.

As a final point, the postdictive validity of the post-treatment rated dynamic items could only be examined for 39 youths. Given that this is less than 30% of the total sample, the findings are reported in the text only. In addition, the validity correlations and AUCs

were recomputed for the pre-treatment dynamic items on the same cases, given that the magnitude of the correlations can be expected to fluctuate with dramatic changes in sample size. On these 39 cases, the pre-treatment dynamic items had stronger associations with prior violence ($r = .42$ and AUC = .75, both $p \leq .01$) than did the post-treatment dynamic items ($r = .38$ and AUC = .70, both $p < .05$). This trend was also observed for any prior criminal offending (pre-treatment $r = .31$ and AUC = .70, both $p < .07$; post-treatment $r = .25$ and AUC = .65, both ns).

Table 2.10

Postdictive validity of forensic youth measures (correlations and AUCs) for previous violent

and general offending

Measure	Prior violent offense			Any prior offense		
	r	AUC	95% CI	*r*	AUC	95% CI
VRS-YV						
Static	.27[a]	.67[a]	.56, .77	.31	.68	.58, .78
Dynamic	.33	.69	.60, .79	.42	.75	.66, .84
Total	.34	.70	.60, .80	.41	.74	.65, .83
PCL-YV	.45	.77	.68, .85	.49	.82	.74, .90
YLS/CMI	.47	.78	.70, .87	.55	.83	.75, .91

Note: all correlations and AUCs significant at $p \leq .001$, with the exception of [a] = $p < .01$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Table 2.11

Postdictive validity (correlations and AUCs) for scale components of forensic youth

measures for violent and general offending

Measure	Prior violent offense			Any prior offense		
	r	AUC	95% CI	*r*	AUC	95% CI
VRS-YV						
F1 Interpersonal violence	.32***	.68***	.58, .78	.36***	.72***	.63, .81
F2 Delinquency	.42***	.75***	.66, .84	.55***	.83***	.75, .91
F3 Family problems	.01	.50	.39, .61	.10	.53	.42, .65
PCL-YV						
F1 Interpersonal	.24*	.62*	.51, .72	.22*	.61	.50, .71
F2 Emotional	.20*	.62*	.51, .72	.25**	.66*	.56, .76
F3 Behavioral	.36***	.72***	.62, .81	.50***	.81***	.73, .89
F4 Antisocial	.50***	.80***	.71, .88	.54***	.86***	.79, .93
YLS/CMI						
Offenses/dispositions	.62***	.84***	.75, .92	.72***	.94***	.90, 98
Education/employment	.29**	.67**	.57, .77	.33***	.69***	.59, .80
Family/parenting	.16	.60	.49, .70	.16	.58	.46, .70
Peer relations	.32***	.68***	.58, .78	.42***	.73***	.64, .83
Substance abuse	.27**	.64*	.54, .74	.42***	.73***	.63, .84
Leisure/recreation	.14	.57	.46, .67	.28***	.65***	.54, .76
Personality/behavior	.27**	.64**	.54, .75	.21*	.61*	.51, .72
Attitudes/orientation	.21*	.62*	.52, .73	.28***	.68***	.57, .79

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Table 2.12

Correlations between VRS-YV items with prior violent and general offending

VRS-YV variable	Prior violence	Any prior offense
	r	
S1 Early onset of antisocial behavior	.19	.31**
S2 Criminality	.51***	.54***
S3 Instability in family upbringing	.04	.14
S4 Antisocial behavior in family	.22*	.10
D1 Violent lifestyle	.36***	.41***
D2 Callous/unemotional	.23*	.23*
D3 Criminal attitudes	.36***	.39***
D4 Negative attitude education	.19*	.32***
D5 Antisocial peers	.38***	.46***
D6 Interpersonal aggression	.17	.25**
D7 Poor emotional control	.10	.08
D8 Institutional violence	.27**	.34***
D9 Weapon use	.27**	.31***
D10 Insight	.01	.01
D11 Mental disorder	.03	-.05
D12 Substance abuse	.31***	.50***
D13 Impulsivity/attention deficits	.19*	.15
D14 Cognitive distortions	.26**	.26**
D15 Poor parent/child interaction	.02	.02
D16 Family stress	-.11	.01
D17 Social isolation	.03	.14
D18 Community disorganization	.20	.36**
D19 Poor compliance	.35***	.47***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Values required for significance vary since number of participants with complete data for each variable also varies.

Figure 2.5

Dynamic risk profile of the study sample: Percent rated with a dynamic item rated

criminogenic (2 or 3) for repeat violent, versus first time violent, young offenders
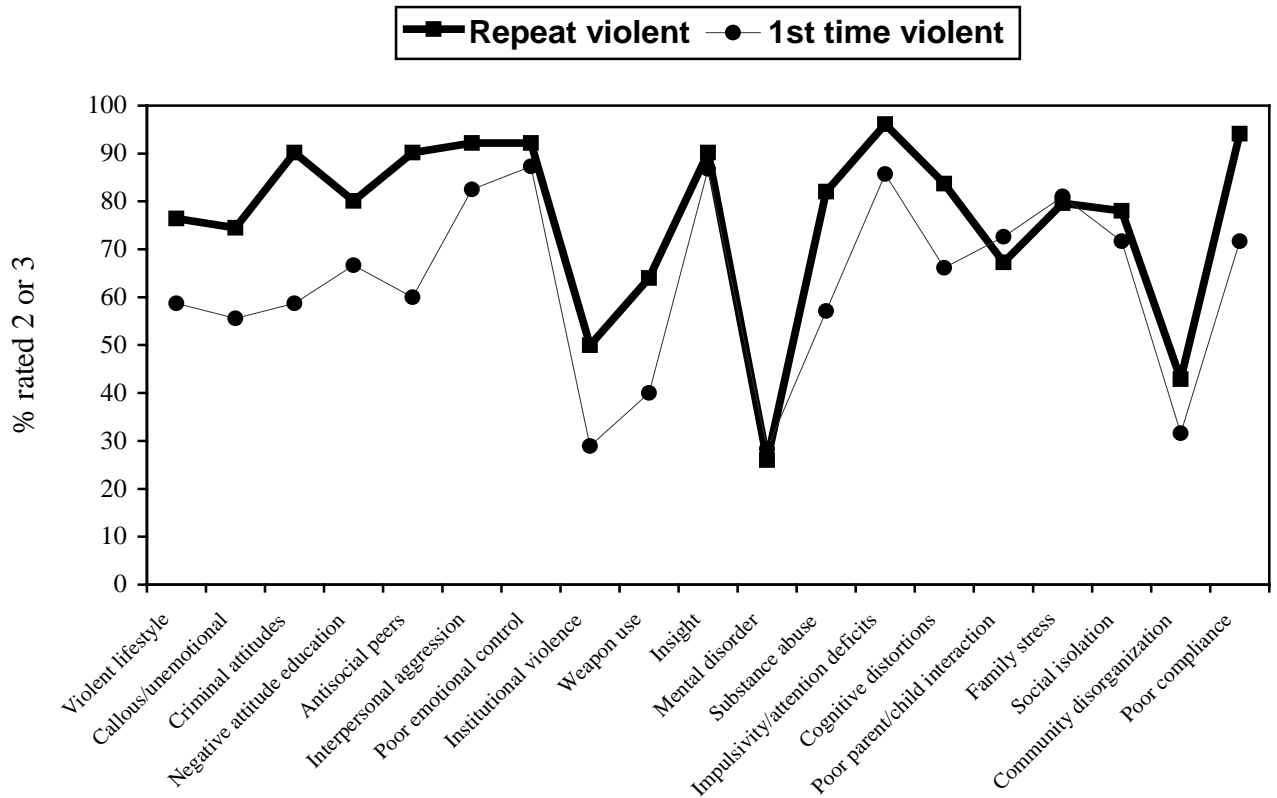
Chi square results as follows (Bonferroni correction used to evaluate significance, α = .05/19 = .003): Violent lifestyle, χ2 (*N* = 114, *df* = 1) = 3.99, *p* < .05; Callous/unemotional, χ2 (*N* = 114, *df* = 1) = 4.40, *p* = .036; Criminal attitudes, χ2 (*N* = 114, *df* = 1) = 14.10, *p* < .001; Negative attitudes toward education, χ2 (*N* = 113, *df* = 1) = 2.49, *ns*; Antisocial peers, χ2 (*N* = 111, *df* = 1) = 13.02, *p* < .001; Interpersonal aggression, χ2 (*N* = 114, *df* = 1) = 2.28, *ns*; Poor emotional control, χ2 (*N* = 114, *df* = 1) = 0.71, *ns*; Institutional violence, χ2 (*N* = 91, *df* = 1) = 4.24, *p* < .05; Weapon use, χ2 (*N* = 110, *df* = 1) = 6.29, *p* = .012; Insight, χ2 (*N* = 112, *df* = 1) = 0.30, *ns*; Mental disorder, χ2 (*N* = 110, *df* = 1) = 0.08, *ns*;, Substance abuse, χ2 (*N* = 113, *df* = 1) = 7.93, *p* = .005; Impulsivity/attention deficits, χ2 (*N* = 114, *df* = 1) = 3.47, *p* = .062; Cognitive distortions, χ2 (*N* = 105, *df* = 1) = 4.24, *p* < .05; Poor parent/child interaction, χ2 (*N* = 111, *df* = 1) = 0.36, *ns*; Family stress, χ2 (*N* = 107, *df* = 1) = 0.04, *ns*; Social isolation, χ2 (*N* = 110, *df* = 1) = 0.58, *ns*; Community disorganization, χ2 (*N* = 66, *df* = 1) = 0.89, *ns*; Poor compliance, χ2 (*N* = 111, *df* = 1) = 9.41, *p* = .002.

3.4 Predictive Validity

3.4.1 Recidivism information

Recidivism data was available for 46.6 % ($n = 62$) of cases. Of these cases, 39 were female while 23 were male and 49 were Aboriginal, 12 were non-Aboriginal, and in one case the ethnicity was not specified in the file. No significant differences were observed between youths with and without outcome data on the YLS/CMI ($M = 25.9$, $SD = 7.3$ and $M = 25.4$, $SD = 8.0$, respectively, t [131] = -0.374, ns), or the VRS-YV ($M = 45.4$, $SD = 12.1$ and $M = 42.6$, $SD = 11.8$, respectively, t [131] = -1.369, ns), although significant differences did emerge on the PCL-YV ($M = 23.4$, $SD = 7.1$ and $M = 20.5$, $SD = 7.8$, respectively, t [131] = -2.21, $p < .05$), with youths who had outcome data having higher PCL-YV scores.

Youth were followed up an average of 25.8 months ($SD = 13.4$, range 2.4 to 63.6 months) from their assessment start dates. Youths were considered recidivists if they incurred a new disposition prior to their 18th birthday. Non-recidivists were followed until the data collection date or when they turned eighteen. Twenty youths (32.3%) had a new disposition for a violent offense and 38 (61.3%) for any offense. The average time to new violent disposition was 10.7 months ($SD = 11.7$) and any disposition, 9.4 months ($SD = 8.6$).

3.4.2 Predictive validity of risk measures

Point biserial correlations and ROC analyses were conducted to examine the predictive accuracy of the youth risk measures for violent and general recidivism. As shown in Table 2.13, each measure significantly predicted violent and general recidivism, with correlations generally being in the .40 to .50 range and AUCs in the mid .70s to low .80s, indicating good predictive accuracy. However, the static component of the VRS-YV

appeared to have substantially lower predictive accuracy for violent and general recidivism than the dynamic component and the other risk measures.

Predictive accuracy statistics for the scale components of the three measures for violent and general recidivism are presented in Table 2.14. Scale components that predicted violent recidivism (or failed to do so), tended to evidence comparable, if not higher, levels of predictive accuracy for general recidivism. Notably, with respect to the VRS-YV, the Interpersonal Violence and Delinquency factors demonstrated strong predictive accuracy for violent and general recidivism, while the Family Problems, by comparison, was quite weak and did not significantly predict general recidivism. All scale components of the PCL-YV significantly predicted both outcomes, with the Antisocial scale facet, followed by the Behavioral and Interpersonal facets, demonstrating the strongest prediction. Finally, with regard to the YLS/CMI, the Attitudes/orientation, Peers, and Education/employment domains were strong and significant predictors of both violent and general recidivism, while Prior offenses and Substance abuse were particularly strong predictors of general recidivism.

Table 2.13

Predictive validity of forensic youth measures (correlations and AUCs) for violent and

general recidivism

Measure	Violent recidivism			General recidivism		
	r	AUC	95% CI	*r*	AUC	95% CI
VRS-YV						
Static	.34[a]	.70[a]	.57, .84	.32[a]	.69[a]	.55, .82
Dynamic	.45	.79	.67, .90	.53	.81	.69, .93
Total	.45	.78	.67, .90	.52	.81	.68, .93
PCL-YV	.47	.76	.63, .89	.44	.76	.63, .89
YLS/CMI	.45	.78	.66, .90	.51	.79	.66, .92

Note: N = 62, $p < .001$ for all validity correlations and AUCs with the exception of [a] = $p <$ .05. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Table 2.14

Predictive validity (correlations and AUCs) for scale components of forensic youth measures

for violent and general recidivism

Measure	Violent recidivism			General recidivism		
	r	AUC	95% CI	*r*	AUC	95% CI
VRS-YV						
F1 Interpersonal violence	.42***	.77***	.65, .88	.45***	.77***	.64, .89
F2 Delinquency	.42***	.74**	.62, .87	.60***	.82***	.70, .95
F3 Family problems	.28*	.67*	.52, .81	.18	.59	.43, .75
PCL-YV						
F1 Interpersonal	.38**	.73**	.60, .87	.29*	.67*	.53, .82
F2 Emotional	.26*	.65	.50, .79	.28*	.64	.49, .80
F3 Behavioral	.36**	.72**	.60, .85	.49***	.77***	.64, .90
F4 Antisocial	.48***	.79***	.66, .91	.54***	.81***	.70, .92
YLS/CMI						
Offenses/dispositions	.28*	.66*	.51, .80	.49***	.78***	.66, .89
Education/employment	.43***	.75***	.62, .89	.39**	.72**	.59, .86
Family/parenting	.21	.62	.46, .77	.16	.60	.45, .75
Peer relations	.33**	.68*	.52, .82	.42***	.73**	.59, .87
Substance abuse	.22	.60	.47, .75	.48***	.76***	.64, .89
Leisure/recreation	.21	.61	.47, .75	.22	.61	.45, .77
Personality/behavior	.27*	.68*	.53, .83	.17	.59	.44, .74
Attitudes/orientation	.38**	.72**	.58, .85	.32*	.69*	.56, .83

Note: N = 62; *** $p < .001$, ** $p < .01$, * $p < .05$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

3.4.3 Predictive validity of VRS-YV items

The individual static and dynamic items of the VRS-YV were also correlated with violent and general recidivism. As illustrated in Table 2.15, most of the items predicted both outcomes, while some appeared to be particularly strong predictors of general recidivism (e.g., Substance abuse, Antisocial peers). On the other hand, some items seemed to be stronger predictors of violence, including Antisocial behavior in the family, Institutional violence, Cognitive distortions, and Family stress. Few of the items failed to predict both outcomes, which was limited to Early onset of antisocial behavior, Instability of family upbringing, Poor emotional control, Weapon use, Mental disorder (negatively correlated), Impulsivity/attention deficits, and Poor parent/child interaction.

Moreover, the frequency with which violent recidivists and violent non-recidivists were rated as having a given dynamic variable criminogenic was also examined. Consistent with the item validity correlations described above, violent recidivists were more likely than non-recidivists to have received a 2 or 3-point rating on most of the items, with the exception being the Mental disorder variable. As illustrated in Figure 2.6, certain items had very high frequencies of being criminogenic for the violent recidivists such as Violent lifestyle, Criminal attitudes, Antisocial peers, Interpersonal aggression, Poor emotional control, Insight, Impulsivity/attention deficits, Cognitive distortions, Social isolation, and Poor compliance, all of which were criminogenic in 90% or more of the cases. After implementing a Bonferroni correction to control for familywise error rate, only Violent lifestyle, Antisocial peers, and Institutional violence, approached or achieved significance ($p < .003$).

Table 2.15

Correlations between VRS-YV items with violent and general recidivism

VRS-YV variable	Violent recidivism	General recidivism
	r	
S1 Early onset of antisocial behavior	.16	.22
S2 Criminality	.38**	.46***
S3 Instability in family upbringing	.13	.05
S4 Antisocial behavior in family	.41***	.22
D1 Violent lifestyle	.48***	.55***
D2 Callous/unemotional	.23	.27*
D3 Criminal attitudes	.43***	.43***
D4 Negative attitude education	.32*	.45***
D5 Antisocial peers	.39**	.63***
D6 Interpersonal aggression	.26*	.27*
D7 Poor emotional control	.20	.12
D8 Institutional violence	.40**	.31*
D9 Weapon use	.14	.23
D10 Insight	.27*	.23
D11 Mental disorder	-.10	-.06
D12 Substance abuse	.20	.43***
D13 Impulsivity/attention deficits	.18	.20
D14 Cognitive distortions	.37**	.32*
D15 Poor parent/child interaction	.12	.20
D16 Family stress	.29*	.15
D17 Social isolation	.29*	.29*
D18 Community disorganization	.27	.34*
D19 Poor compliance	.29*	.39**

Note: Magnitude of correlation required for significance varies since number of participants with complete data for each variable also varies (n = 43 to 62).
*** *p* < .001, ** *p* < .01, * *p* < .05

Figure 2.6

Dynamic risk profile of the study sample: Percent rated with a dynamic item rated

criminogenic (2 or 3) for violent recidivist versus violent non-recidivist young offenders
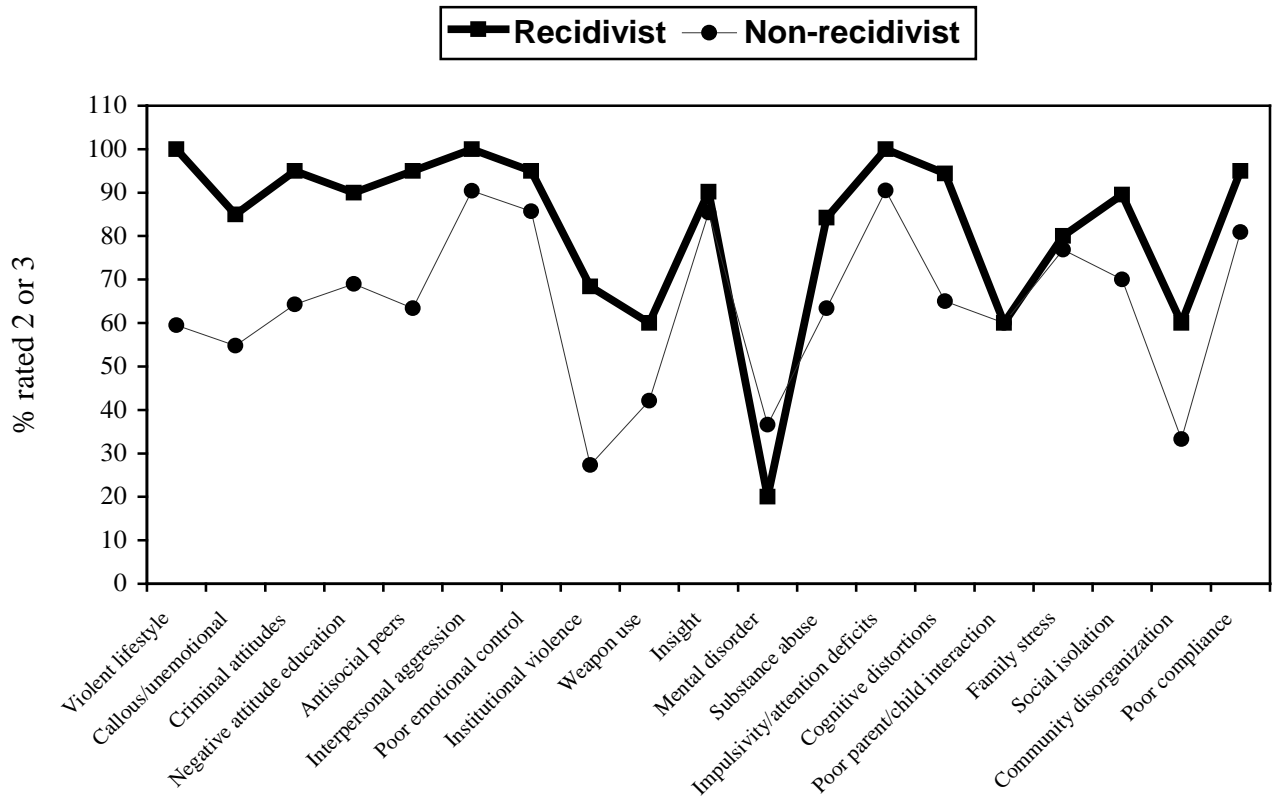
Chi square results as follows (Bonferroni correction used to evaluate significance, α = .05/19 = .003): Violent lifestyle, χ2 (*N* = 62, *df* = 1) = 11.15, *p* = .001; Callous/unemotional, χ2 (*N* = 62, *df* = 1) = 5.41, *p* < .05; Criminal attitudes, χ2 (*N* = 62, *df* = 1) = 6.68, *p* = .01; Negative attitudes toward education, χ2 (*N* = 62, *df* = 1) = 3.24, *ns*; Antisocial peers, χ2 (*N* = 61, *df* = 1) = 6.93, *p* = .008; Interpersonal aggression, χ2 (*N* = 62, *df* = 1) = 2.04, *ns*; Poor emotional control, χ2 (*N* = 62, *df* = 1) = 1.17, *ns*; Institutional violence, χ2 (*N* = 52, *df* = 1) = 8.36, *p* = .004; Weapon use, χ2 (*N* = 58, *df* = 1) = 1.68, *ns*; Insight, χ2 (*N* = 61, *df* = 1) = 1.23, *ns*; Mental disorder, χ2 (*N* = 61, *df* = 1) = 1.72, *ns*; Substance abuse, χ2 (*N* = 60, *df* = 1) = 2.67, *ns*; Impulsivity/attention deficits, χ2 (*N* = 62, *df* = 1) = 2.04, *ns*; Cognitive distortions, χ2 (*N* = 58, *df* = 1) = 5.61, *p* < .05; Poor parent/child interaction, χ2 (*N* = 60, *df* = 1) = 0.00, *ns*; Family stress, χ2 (*N* = 59, *df* = 1) = 3.07, *ns*; Social isolation, χ2 (*N* = 59, *df* = 1) = 2.70, *ns*; Community disorganization, χ2 (*N* = 43, *df* = 1) = 2.28, *ns*; Poor compliance, χ2 (*N* = 62, *df* = 1) = 2.16, *ns*.

3.4.5 Predictive validity of VRS-YV risk bins

Next, risk bins were created on the basis of VRS-YV total scores and their relationship to violent and general recidivism was examined. Based on previous research on the bin structure of the parent measure (Burt, 2000; Wong & Gordon, 2006), three bins were created – low risk (0-30), medium risk (31-44), and high risk (45-69). These cutoffs corresponded roughly to the bottom quartile, middle 50%, and top quartile of VRS-YV scores, respectively. Conceptually, the minimum score for a youth classified as high violence risk would correspond to a 2-point rating on every item (i.e., the minimum score being 46 if every item was criminogenic). The frequencies of violent and general recidivism for each risk level are presented in Figure 2.7. As illustrated in this figure, there was a successive increase in the frequency of violent and general recidivism, with each successive increase in risk level. None of the 13 low risk offenders, received a new disposition for a violent offense during the follow up period, while more than half of the high risk group violently recidivated. There was a significant relationship between risk level and both violent, χ^2 ($N = 62$, $df = 1$) = 10.95, $p = .004$, $\varphi = .42$, and general recidivism, χ^2 ($N = 62$, $df = 1$) = 12.81, $p = .002$, $\varphi = .46$.

Survival analyses were then performed using these risk bins over a 36-month follow up, given that the vast majority of youths had either recidivated within this time window or lasted in the community until adulthood without incurring a new disposition. Youths who recidivated outside this time window (i.e., after 36 months), were coded non-recidivists, as were youths who were at risk for less than this period of time but who nevertheless did not recidivate. Survival analysis plots the cumulative recidivism failure rate for a given cohort over time (in this case, months). Steeper curves indicate a faster and higher rate of failure (i.e., recidivism). As depicted in Figure 2.8, significant overall differences were observed in

the survival curves produced for the three risk groups for violent recidivism (Wilcoxin (2) = 13.18, p = .001), with the high risk group having a significantly higher violent failure rate than the medium (Wilcoxin (1) = 4.96, p < .05), and low (Wilcoxin (1) = 10.81, p = .001) risk groups. Significant differences were also observed between the survival curves of the medium and low risk groups (Wilcoxin (1) = 5.25, p < .05).

Finally, a similar trend in failure rate was also observed between the three groups for general recidivism (Wilcoxin (2) = 15.25, p < .001). The difference in failure rate between the high and medium risk groups attained trend level significance (Wilcoxin (1) = 3.47, p = .062), while the difference between the high and low groups was substantial (Wilcoxin (1) = 13. 83, p < .001). The differences in general failure rate between the medium and low groups also easily attained significance (Wilcoxin (1) = 7.93, p < .005).

Figure 2.7

Frequency of violent and general recidivism as a function of VRS-YV risk level
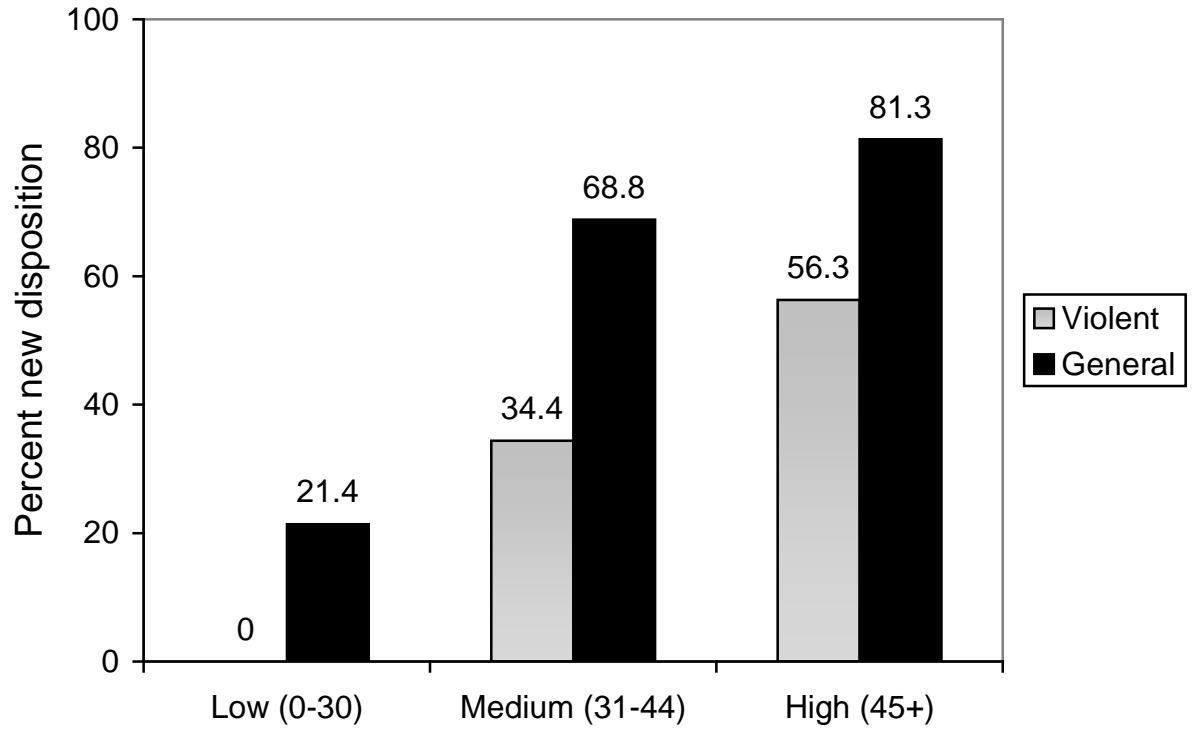
Figure 2.8

Survival analysis: Cumulative violent recidivism failure rate as a function of VRS-YV risk group (N = 62).
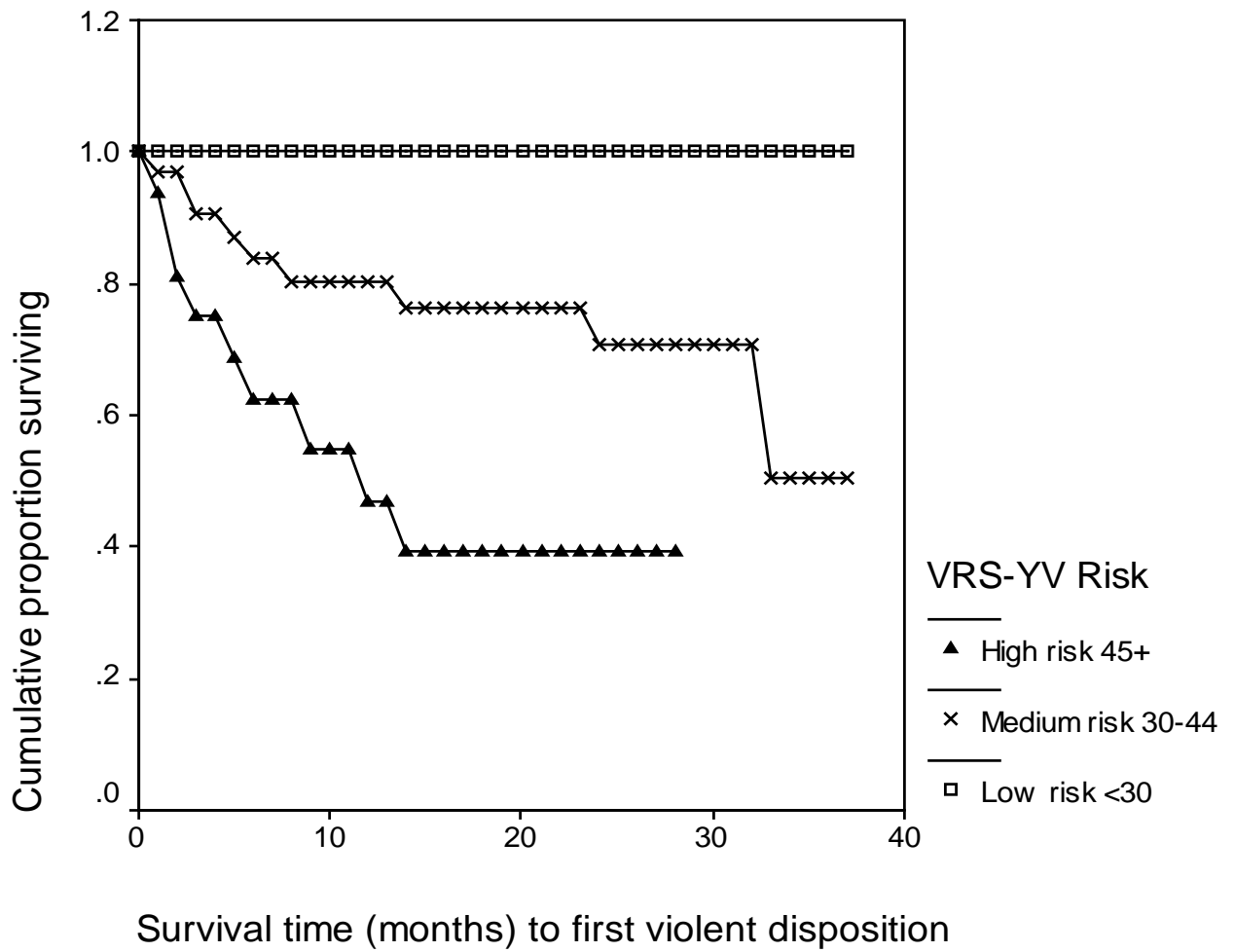
Figure 2.9

Survival analysis: Cumulative general recidivism failure rate as a function of VRS-YV Risk Group (N = 62).
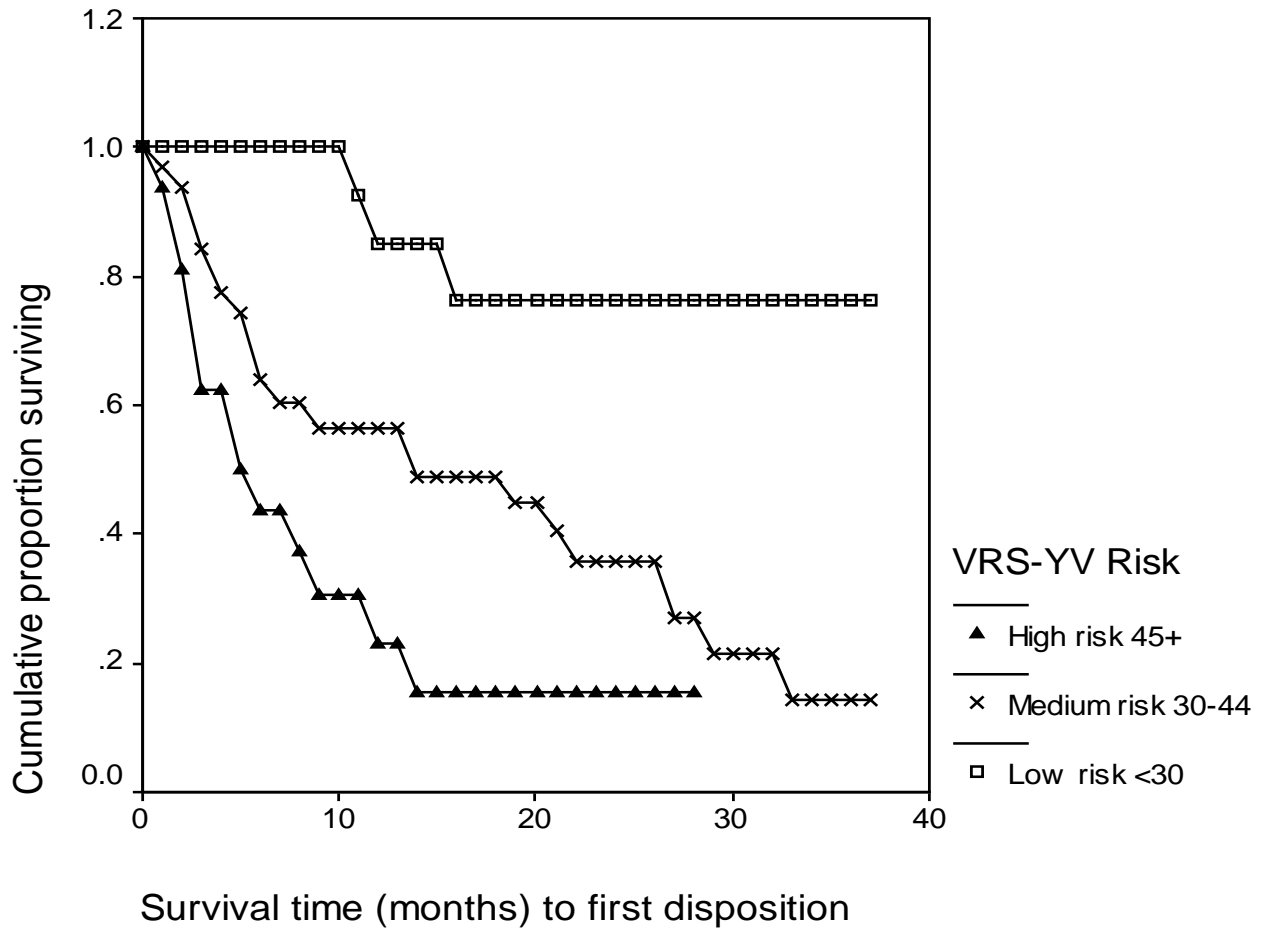
3.4.6 Relative contributions of risk measures for predicting violent and general recidivism

The relative contributions of the three risk measures for predicting violent and general recidivism were examined through logistic regression. The analyses also sought to examine the relative contributions of the static and dynamic components of the VRS-YV (which are highly correlated, $r = .73$) for predicting recidivism, that is, to ascertain whether dynamic variables make a unique contribution to predicting violent and general recidivism after controlling for static variables. If the dynamic items make an incremental contribution (i.e., add unique explanatory variance to the prediction of recidivism), then this component of the VRS-YV should continue to significantly predict violent or general recidivism after controlling for static variables.

In these analyses, a binary (yes-no) criterion variable was used as the dependent measure, and two risk measures were entered simultaneously into the regression equation and their relative individual contributions examined. Five sets of analyses were each conducted for the prediction of violent and general recidivism.

In regards to the prediction of violence (see Table 2.16), the dynamic component of the VRS-YV made strong and significant incremental contributions to the prediction of outcome, while the static component did not. Specifically, *Exp(B)*, is an odds ratio statistic that represents the predicted increase in hazard (i.e., the likelihood, or odds, of violent recidivism occurring) for each unit increase in the predictor variable. As mentioned earlier, values above 1.0 indicate a positive relationship between the predictor and the outcome – the value attains significance if the lower bound of the confidence interval does not dip below 1.0. For instance, an *Exp(B)* of 1.15 (95% CI = 1.03 to 1.29) for the Dynamic items (see

Table 2.16) would translate into a predicted 15% increase in the probability of violent recidivism for every one-point increase in dynamic risk score. Other analyses that followed, however, did not suggest that any one given measure necessarily predicted violence significantly better after controlling for the other.

A similar pattern was observed for the logistic regression analyses in predicting general recidivism (see Table 2.17), with the dynamic variables making unique contributions to predicting outcome after controlling for the static component of the VRS-YV. Perhaps unexpectedly, however, the VRS-YV dynamic score and total score significantly predicted general recidivism after controlling for the PCL-YV, while this instrument in turn, did not. However, the VRS-YV did not significantly predict general recidivism after controlling for the YLS/CMI (nor did this instrument predict general recidivism after controlling for the VRS-YV).

Table 2.16

Logistic regression analyses: Relative contributions of risk measures in predicting violent recidivism

Measure	*B*	*SE*	*Wald*	*Exp (B)*	95% CI	
					Lower	Upper
VRS-YV						
Static	.018	.186	.009	1.02	.707	1.47
Dynamic	.142	.058	6.01	1.15	1.03	1.29
Dynamic	..091	.071	1.66	1.10	.954	1.26
YLS/CMI	.090	.093	.919	1.09	.911	1.32
VRS-YV total	.072	.060	1.44	1.07	.955	1.21
YLS/CMI	.092	.097	.897	1.10	.907	1.32
Dynamic	.105	.062	2.92	1.11	.985	1.25
PCL-YV	.071	.077	.863	1.07	.924	1.25
VRS-YV total	.084	.051	2.75	1.09	.985	1.20
PCL-YV	.074	.077	.904	1.08	.925	1.25

Note: PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Table 2.17

Logistic regression analyses: Relative contributions of risk measures in predicting general recidivism

Measure	*B*	*SE*	*Wald*	*Exp (B)*	95% CI	
					Lower	Upper
VRS-YV						
Static	-.147	.187	.612	.864	.598	1.25
Dynamic	.169	.055	9.40	1.18	1.06	1.32
Dynamic	.097	.062	2.47	1.10	.976	1.24
YLS/CMI	.077	.085	.811	1.08	.914	1.28
VRS-YV total	.068	.052	1.72	1.07	.967	1.19
YLS/CMI	.092	.086	1.14	1.10	.926	1.30
Dynamic	.115	.055	4.47	1.12	1.01	1.25
PCL-YV	.046	.071	.424	1.05	.911	1.20
VRS-YV total	.087	.044	3.82	1.09	1.00	1.19
PCL-YV	.058	.070	.689	1.06	.924	1.22

Note: PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

3.4.7 *Predictive validity as a function of gender, culture, and developmental level*

The predictive validity of the three risk measures for violent and general recidivism was examined as a function of gender (male versus female), culture (Aboriginal versus non-Aboriginal ancestry), and developmental level or age (early versus late adolescence).

Firstly, predictive validity correlations were computed for the three measures with respect to outcome for each of the four groups – male, female, Aboriginal, and non-Aboriginal. The results are summarized in Table 2.18. With respect to gender, the risk measures significantly predicted violent and general recidivism for both males and females, despite the smaller cell sizes (n = 22 and 40, respectively). No single measure appeared to predict particularly stronger than the others, although the VRS-YV static items had a more modest relationship to recidivism outcome than the dynamic component of the VRS-YV or the other risk measures. Furthermore, in this predominantly Aboriginal subsample (n = 49), the three measures consistently significantly predicted violent and general recidivism, with correlations most frequently seen in r = .40 range. By contrast, none of the measures attained significant predictive accuracy in the much smaller non-Aboriginal subsample.

Secondly, the youths were split into two age groups – 12 to 15 (n = 40) and 16 to 17 (n = 22), and the predictive accuracy of the three risk measures for general violent and general recidivism was examined. As shown in Table 2.19, the three risk measures had strong, significant predictive accuracy for both outcomes among 12-15 year olds. The predictive validity correlations for 16-17 year olds were comparable in magnitude for general recidivism, although smaller, and non-significant, in the prediction of violence.

The results of t-tests comparisons demonstrated no significant differences between the early and late adolescent groups in their mean scores on each of the risk measures:

YLS/CMI, *M* = 25.7 (*SD* = 6.8) and 25.8 (*SD* = 8.5), respectively, *t* (60) = -.047, *ns*; PCL-

YV, *M* = 24.1 (*SD* = 6.8) and *M* = 22.0 (*SD* = 7.6), *t* (60) = 1.12, *ns*; VRS-YV, *M* = 45.7 (*SD*

= 11.0) and *M* = 44.7 (*SD* = 14.4), *t* (60) = .288, *ns*.

A logistic regression was also conducted to examine the predictive accuracy of the

VRS-YV for violence after statistically controlling for gender and ethnicity. Binary ethnicity

and gender variables and continuous VRS-YV total scores were entered simultaneously into

the regression equation. While gender [Wald (1) = 0.35, *ns*, *Exp(B)* = 1.53] and ethnicity

[Wald (1) 0.63, *ns*, *Exp(B)* = 2.54] were not significant predictors, VRS-YV score remained a

significant predictor of violence [Wald (1) = 7.54, *p* = .006, *Exp(B)* =1.12].

Table 2.18

Predictive validity of risk measures for violent and general recidivism (point-biserial

Correlations) as a function of gender and ethnicity

Measure	Male (n = 22)		Female (n = 40)		Aboriginal (n = 49)		Non-Aboriginal (n = 12)	
	Violent	General	Violent	General	Violent	General	Violent	General
VRS-YV static	.37	.58*	.32*	.18	.30*	.16	.24	.45
VRS-YV dynamic	.52*	.74***	.40**	.39*	.43**	.42**	.26	.38
VRS-YV total	.51*	.74***	.41**	.36*	.42**	.38**	.29	.45
PCL-YV total	.59**	.67***	.33*	.34*	.45**	.47***	.19	.29
YLS/CMI total	.51*	.70***	.41**	.39*	.43**	.33*	.16	.44

Note: *** $p < .001$, ** $p < .01$, * $p < .05$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Table 2.19

Predictive Validity of Risk Measures for Violent and General Recidivism as a Function of

Developmental Level (12-15 year-olds, n = 40 and 16-17 year-olds, n = 22)

Measure	Violent recidivism		General recidivism	
	age 12-15	age 16-17	age 12-15	age 16-17
VRS-YV	.57***	.31	.53***	.51*
PCL-YV	.55***	.13	.37*	.60**
YLS/CMI	.57***	.31	.45**	.62**

Note: *** $p < .001$, ** $p < .01$, * $p < .05$. *Note:* PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

3.5 *Analysis of Change*

To determine whether a significant amount of change had occurred in offender risk as a function of treatment, change scores were obtained by summing change ratings across individual criminogenic dynamic items. Due to the relatively small number of treatment cases included in the overall sample, and scant information pertaining to treatment progress, change scores could only be calculated for a small sample of youth ($n = 39$). The sample included both male ($n = 24$) and female ($n = 15$) youth. Approximately 56% were of Aboriginal background ($n = 22$). Mean total scores on all forensic measures were comparable to the total sample: YLS/CMI ($M = 25.3$, $SD = 7.7$); PCL-YV ($M = 22.9$, $SD = 8.9$); and VRS-YV ($M = 42.5$, $SD = 11.7$). The average change score was 2.32 points ($SD = 2.42$) with obtained scores ranging from -1.50 to 10.0.

As illustrated in Figure 2.6, the majority of youth (65.6%) were assessed as being in the Precontemplation stage of change prior to treatment. Following treatment, the majority were assessed as being in the Contemplation (34.2%) or Preparation (30.6%) stage of change.

Change scores were positively correlated with the total number of treatment sessions attended ($r = .49$, $p < .01$, $n = 31$) and length of treatment in months ($r = .51$, $p < .05$, $n = 21$). Pre-treatment risk level as assessed by VRS-YV dynamic items was unrelated to the amount of change participants made ($r = -0.07$, *ns*).

Figure 2.10

Stages of change ratings on VRS-YV dynamic items pre- and post-treatment
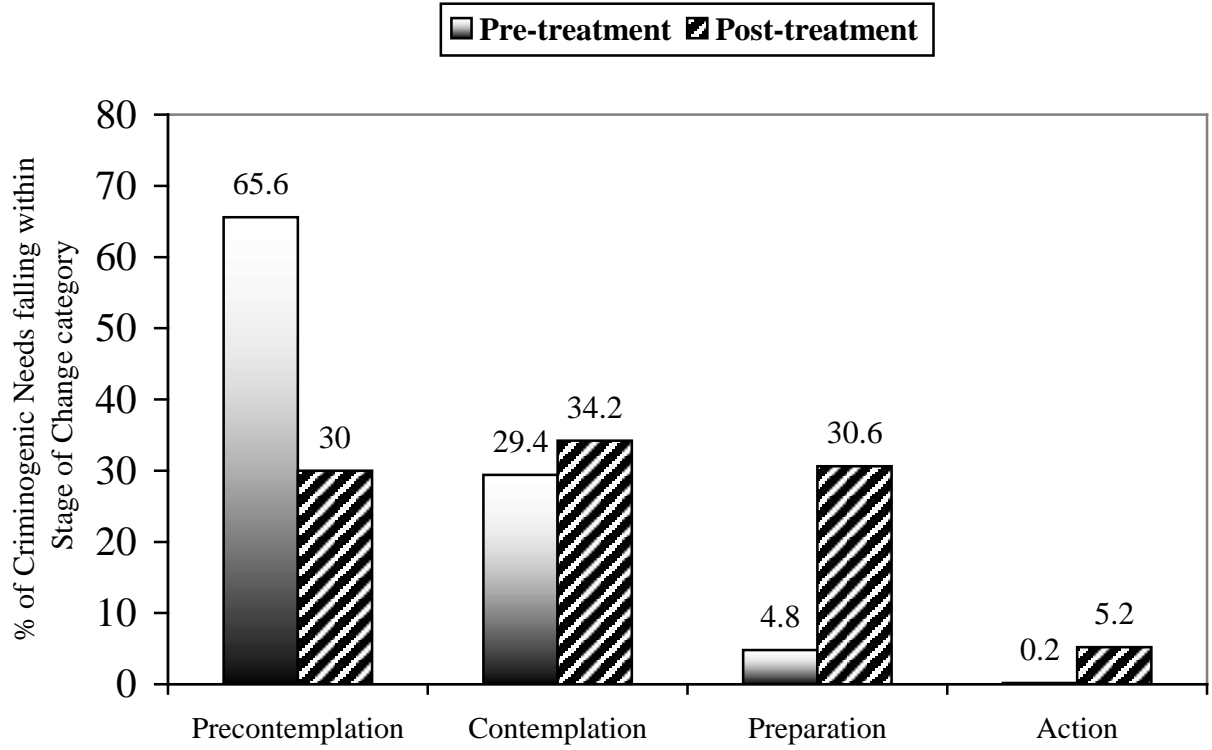
3.5.1 Predictive validity of change

In accordance with the analyses proposed earlier, the predictive validity of change for violent and general recidivism was examined. Ideally, the purpose of these analyses would be to determine whether changes in risk are related to reductions in recidivism (i.e., the extent to which the dynamic variables are indeed dynamic). However, as only 22 cases with recidivism data were available, the following analyses are considered to be very exploratory.

First, change scores were negatively correlated with any new violent disposition (r = -.16, ns), number of new violent dispositions (r = -.13, ns), and non-significantly positively correlated with time to first violent disposition (r = .34, ns). Change was non-significantly positively correlated with any new disposition (r = .12, ns) and uncorrelated with total number of new dispositions (r = .00). However, change was significantly positively correlated with time to any new disposition (r = .76, n = 12, p < .01), suggesting that increased change was associated with increased time until first disposition.

Finally, in this small subsample, VRS-YV pre-and post-treatment dynamic total scores had correlations that were comparable in magnitude with violent (both r = .61, p < .01) and general (r = .63 and .58, respectively, p < .01) recidivism.

4. Discussion

In Study 1, a series of psychometric analyses were conducted in order to examine the reliability, item properties, and factor structure of the VRS-YV. The current study sought to build upon these results. The primary objective of Study 2 was to evaluate the construct and criterion-related validity of the tool, including its convergent, postdictive, and predictive validity. Further to the VRS-YV ratings described in Study 1, two additional forensic measures, the YLS/CMI and the PCL-YV, were rated on the same sample for comparison purposes. As such, the reader is reminded that the unique features (e.g., possible sampling bias, variability in the data source, missing data) and characteristics (e.g., high risk, high need, referred to community mental health services) of the sample as described in Study 1 and the potential implications of same, also apply to Study 2. Sample size was further reduced for some analyses in Study 2, owing to occasional missing data (e.g., postdictive and predictive validity analyses, Gender x Ethnicity comparisons). The results described below are preliminary and should be interpreted cautiously.

4.0 *Brief Descriptive Statistics and Reliability*

Ancillary risk measures were rated on the sample and high interrater reliability was observed. Overall youths scored in what would be considered the "High risk" range on the YLS/CMI and demonstrated moderate scores on the PCL-YV. These findings add corroboration that this is a high risk, high need, sample of youths, as suggested in Study 1.

4.1 *Convergent/Construct Validity*

The construct validity of the VRS-YV for assessing violence risk was established through examining patterns of convergent validity correlations with two established forensic assessment measures. The VRS-YV demonstrated strong convergence with both the

YLS/CMI ($r = .85$) and PCL-YV ($r = .79$), and large, significant, positive correlations were observed among the three measures.

Importantly, it has been argued that such large correlations do not imply redundancy (e.g., Wong & Gordon, 2006), but rather, reflect the underlying conceptual similarity (e.g., contain some overlapping variables to assess risk) of standardized forensic tools (although they may be designed for different purposes including, to assess psychopathy, to predict general recidivism, to assist with case management, to assess violence risk, and to evaluate therapeutic change).

Patterns of intercorrelations were further observed among the scale components in a conceptually meaningful manner. For instance, the Delinquency factor of the VRS-YV had the greatest convergence with the criminogenic need dimensions of the YLS/CMI, a measure typically used as a broad based assessment of risk for general recidivism. Moreover, the scale components of the VRS-YV tended to be more highly correlated with factors 3 (Behavioral) and 4 (Antisocial) of the PCL-YV, than with factors 1 (Interpersonal) and 2 (Emotional). In other words, it would seem that the VRS-YV is demonstrating the strongest convergence with factors of the PCL-YV thought to capture a larger portion of the risk variance (as demonstrated by stronger prediction of recidivism; see Walters, 2003), as opposed to personality features of psychopathy.

At the same time, the interpersonal and emotional attributes of juvenile psychopathy as assessed by the PCL-YV were most strongly associated with higher scores on the VRS-YV factor that most explicitly tapped violence (i.e., Interpersonal Violence). It seems plausible that attributes such as callousness, lack of remorse, deceitfulness, manipulation, and impression management would be conducive to committing violent acts, and hence, covary

strongly with a constellation of items associated with interpersonal violence and aggression, and would appear consistent with the large body of research linking psychopathy and interpersonal violence (e.g., Brandt et al., 1997; Catchpole & Gretton, 2003).

Taken together, the findings provide some initial support for the construct validity of the tool. However, given that construct validity requires evidence for both convergent (i.e., show a correspondence between similar constructs) and discriminant (i.e., discriminate between dissimilar constructs), this type of validity could be further strengthened through future research examining both convergent and discriminant validity (Murphy & Davidshofer, 1994).

4.2 *Gender and Ethnicity*

With respect to gender, few significant differences were observed between male and female youths on scale components of the VRS-YV, YLS/CMI, and PCL-YV. As such, male and female violent young offenders appear comparable in their level risk as assessed via the three measures. Moreover, few substantive differences emerged between the groups in any individual criminogenic need area, suggesting that male and female violent young offenders have similar criminogenic needs as assessed by the VRS-YV, YLS/CMI, and PCL-YV.

While these results are not dissimilar to those reported in the literature (e.g., Jung & Rawana, 1999; Gossner & Wormith, 2007) the findings should not be interpreted to mean that adolescent males and females do not have any unique personal/emotional needs or responsivity issues, as has been pointed out by researchers examining gender, diversity, and risk (e.g., Hannah-Moffat & Shaw, 2001). Indeed, recent research (e.g., Odgers et al., 2005) has provided some preliminary support for "gender-sensitive" risk/need domains (e.g., family issues, trauma, and health concerns); although the findings are not particularly strong. The

majority of adolescent females comprising these samples had histories of incorrigible and/or unruly behavior, as opposed to more serious offenses such as robbery or assault. However, in one such investigation, adolescent females "unexpectedly" scored significantly higher in domains associated with psychopathy, accountability, and peer relationships (traditionally considered "male domains") and the authors proposed that this may be due, in part, to the inclusion of perpetrators of domestic violence in the study sample (Gavazzi, Yarcheck, & Chesney-Lind, 2006).

In contrast to the gender comparisons described above, several significant differences were observed between Aboriginal and non-Aboriginal youth. Firstly, Aboriginal youth had significantly higher scores on the YLS/CMI, PCL-YV, and VRS-YV, including scale totals and individual scale components (i.e., risk/need domains). Therefore, Aboriginal youth appear to be at greater recidivism risk and tend to have greater criminogenic needs, on average, than non-Aboriginal youth, by virtue of the group differences observed.

Such findings are consistent with the small, albeit, growing body of literature on culturally diverse youth including, Aboriginal (e.g., Jung & Rawana, 1999) and African American (e.g., McCoy & Edens, 2007) youth, which has generally indicated an elevated risk, relative to Caucasian youth. For instance, Gossner and Wormith (2007) found that Aboriginal youth living in the province of Saskatchewan obtained significantly higher total scores on the YLS/CMI ($M = 18.18$, $SD = 6.25$) than non-Aboriginal youth ($M = 11.56$, $SD = 6.61$), and significant differences were also found on six of the eight risk/need domains (the exceptions being personality and antisocial attitudes). A similar pattern of results was observed in the current study, although mean scores were considerably higher by comparison (again, reflecting the potentially high risk-need nature of the sample as proposed in Study 1)

and significant differences were observed in one less risk/domain domain (Family/parenting). Relatively high mean scores were observed for each ethnic group on the Family/parenting subscale, suggesting that participants tended to have fairly substantive family concerns overall.

At this point, it is also worth mentioning that some additional scale components between the risk measures were not significantly different between male Aboriginal and non-Aboriginal youths, namely the Interpersonal and Emotional factors of the PCL-YV, and the Family Problems factor of the VRS-YV. As such, the results of the current study would also suggest that Aboriginal and non-Aboriginal youths are largely equivalent in risk/need areas that include family difficulties, antisocial attitudes, and personality attributes conducive to violent criminal behavior. In other words, youth with a history of violence tended to come from disadvantaged or problematic family backgrounds and were equally as likely to espouse criminal values or display personality features conducive to criminal behavior (e.g., empathy deficits, lack of guilt or remorse), regardless of their ethnicity or cultural background.

Further analyses also revealed a compelling series of interactions between gender and ethnicity. Aboriginal males tended to score highest on the measures, while Aboriginal and non-Aboriginal females tended to score comparably to one another. By contrast, non-Aboriginal males tended to score lowest on the measures, even when compared to female youth (irrespective of ethnicity). While possible explanations for these findings are beyond the scope of this investigation, some speculations are offered.

With respect to the females, it is possible a high level of risk and need may be required in order to advance far enough into the youth justice system to be referred for assessment and treatment services. Put simply, low risk females were not among the typical

referrals of this clinic, rather, high risk female youths seemed most likely to be referred for services. This hypothesis may also help to explain the widespread notion among clinicians that girls are harder to work with and often present with more numerous and serious problems (e.g., Baines & Alder, 1996; Gavazzi, Yarcheck, & Chesney-Lind, 2006).

Males, on the other hand, seemed to present a different picture, as Aboriginal male youths tended to be substantially higher risk/needs than non-Aboriginal males. One possible explanation may be that Aboriginal males are more likely to be gang-involved, which in turn, could serve to inflate many criminogenic needs, including those that tend to be violence specific (e.g., Violent lifestyle, Weapon use). According to a recent report prepared by the Criminal Intelligence Service Saskatchewan (a coalition of police agencies), Saskatchewan has the largest number of aboriginal street gang members per capita in Canada (CISS, 2005). This province also has the highest number of youth gang members per capita, and Aboriginal youth constitute the second largest percentage of youth gang members in Canada (after African Canadian youth; Statistics reported by the National Crime Prevention Centre, 2007).

Finally, although the above results are intriguing, one must keep in mind that ethnicity was operationalized in a fairly simplistic and categorical fashion due to study design (archival) and file quality, and potentially important variables (e.g., level of acculturation, proximal causes of group differences) require further investigation.

4.3 *Postdictive Validity*

The extension and validation of the VRS-YV further involved an investigation of the extent to which scores on the VRS-YV are related to some external criterion, including the postdiction of past violence, or postdictive validity. Given that this was a sample of violent young offenders, those who already had a previous violent charge or conviction were, for all

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intents and purposes, recidivists. However, this is not a true measure of recidivism, which entails some temporal follow-up period coming after the assessment. Nevertheless, postdictive validity provides some proxy for how well an instrument may be able to predict future violence (if it is associated with repeated acts of previous violence).

Each of the three forensic measures was significantly associated with prior violent and general offending. Although correlations and AUC values were slightly higher for general than for violent offending (perhaps owing to differences in base rate), overlapping confidence intervals between the instruments within each offense category, suggested that no given instrument displayed superior accuracy in postdicting violent or general offending behavior.

Not surprisingly, scale components that explicitly measured criminal history (such as, Offenses/dispositions from the YLS/CMI and the Antisocial factor from the PCL-YV), demonstrated very high and arguably inflated correlations with offense history, given that one measure of criminal history was simply being correlated with another (in this case, the criterion variable). For instance, one would be hard-pressed to find a youth who has prior charges or convictions to register a lower score on the criminal history portion of the YLS/CMI, than a youth for whom this is his or her first disposition.

The historical or static component of the VRS-YV appears to be relatively less robust. However, this component is comprised of a small number of items and only one item (i.e., Criminality) relates directly to past criminal behavior. In fact, half of the items pertain to family problems and load quite highly on the VRS-YV factor by the same name. Moreover, the Family Problems factor evidenced weak and frequently non-significant postdictive validity, although so did the Family/parenting dimension of the YLS/CMI. Therefore, low

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postdictive accuracy may not be necessarily endemic to the Family Problems factor per se. For instance, the information pertaining to past and/or current family functioning contained in the files may be poor. Alternatively, it is possible that the postdictive validity of this factor and some constituent items may have been undermined by idiosyncratic features of the sample.

Importantly, several scale components that do not explicitly tap criminal history demonstrated respectable and significant postdictive validity for violent and general offending, including the Interpersonal and Emotional factors of the PCL-YV, the risk/need domains of Education/employment, Peer relations, Substance abuse, Personality/behavior, and Attitudes/orientation on the YLS/CMI, and the Interpersonal Violence and Delinquency factors of the VRS-YV. The fact that these arguably dynamic components were strongly associated with offending history, including violence, offers some support for their validity in assessing violence risk.

In terms of the individual VRS-YV items, it would appear that the majority of items were significantly correlated with past offending. Moreover, VRS-YV items with greater violence-specific content (e.g., Violent lifestyle, Institutional violence, Weapon use, Substance Abuse) correlated as high or better with previous violence than they did for prior general offending. Again, these correlations may be somewhat inflated owing to the confounds discussed above, that are inherent to this type of analyses.

In addition to those loading on the Family Problems factor (Instability in family upbringing, Mental disorder, Poor parent child interaction, and Family stress) (discussed above), Early onset of antisocial behavior, Interpersonal aggression, Poor emotional control, Insight, and Social isolation demonstrated non-significant correlations with past violence.

There are likely multiple explanations for this. Some items, such as Emotional control and Interpersonal aggression tended to have high scores overall and little variance (i.e., most of the sample tended to score high on them), and thus high scores did not seem to discern first time from repeat violent offenders. Similarly other items, such as Mental disorder, seemed to be low base rate items (i.e., most youths scoring low), and scores also did not seem to differentiate first time from repeat violent offenders. Finally, some items had weak inter-rater reliability (e.g., Family stress), which may have also compromised postdictive accuracy.

In contrast, a conservative test to control for familywise error rate found that certain items were particularly strong in differentiating first time from repeat violent offenders, including Criminal attitudes, Antisocial peers, and Poor compliance. As such, scores on these three VRS-YV items would seem to best distinguish first time from repeat violent offenders. It is interesting that all three are dynamic items, and suggests that the dynamic (i.e., potentially changeable) factors may have greater validity for assessing violence risk.

Unfortunately, the postdictive validity of the post-treatment rated dynamic items could only be examined for 39 youths. Given that this is less than 30% of the total sample, the analyses are considered highly exploratory in nature. Although it warrants mentioning that the pre-treatment dynamic items had stronger associations with prior violence than did the post-treatment dynamic items, and this trend was also observed for any prior criminal offending. This would be expected as has been observed with the parent measures (e.g.., Wong & Gordon, 2006) and seems to make sense conceptually, given that a measure of pre-treatment risk prior to any intervention should correlate more highly with criminal history (i.e., static risk factors) than a measure of risk obtained following treatment. Post-treatment items (i.e., dynamic risk factors) are intended to capture changes in risk through treatment,

and should covary less strongly with criminal history if indeed they are measuring some variant of change.

It is important to keep in mind that while postdictive validity provides an indirect estimate of an instrument's predictive accuracy for future behavior, postdictive associations are often confounded by the fact that most instruments contain static items or have dynamic items that are rated in part on the basis of historical information. As a result, postdictive estimates of predictive accuracy may be inflated and not that meaningful (i.e., a "poor man's predictive validity"). As such, true predictive validity, in which the outcome is not known or has not yet occurred, is substantially methodologically stronger and practically meaningful.

4.4 *Predictive Validity*

It first warrants mentioning that recidivism data were available for only a little more than half of the total sample ($n = 62$). Other than the fact that the cases for which follow-up data were unavailable were older, and therefore did not have an electronic record, there was no particular reason to expect that cases for which there was recidivism information were systematically different from those with outcome data. Indeed, basic screening analyses yielded small and frequently nonsignificant differences on the risk measures, suggesting that both sets of youths were of comparable risk. As such, there were few concerns about proceeding with predictive validity analyses. (Although it warrants mentioning that youths for which outcome data were available had significantly higher scores on the PCL-YV. While this may be related to changes in service provision at CYP in recent years, it could also be explained by error.)

The base rate for general reoffending was 61.3%, and 32.3% of youths received a new disposition for a violent offense, during an average follow-up time of approximately 2

years. While the base rate for general recidivism would seem comparable to that typically reported in the adolescent risk assessment literature (e.g., Catchpole & Gretton, 2003, reported a base rate of 58%), the base rate for violent reoffending appears to be somewhat higher (e.g., Catchpole & Gretton, 2003, reported a base rate of 23%). This being said, the mean follow-up time of the current investigation is also longer than what is typically found in the literature (e.g., Jung & Rawana, 1999; Gossner & Wormith, 2007). A longer follow-up time is an asset, especially when using a conservative outcome measure of recidivism, as was employed in the current study (i.e., any new youth disposition).

Before proceeding further, it is important to note that the investigator was blind to recidivism information until all other data had been collected and entered into an electronic datafile. While this reduces the potential for bias, which is an important strength of the current study, it must be remembered that the investigator did not collect the outcome data firsthand, rather, it was provided to her by CPSP in the form of an electronic spreadsheet. As such, the author cannot speak to the precise methods and procedures used to compile the data, nor can she directly evaluate the quality of the source. However, given that the source of the data is an official government database, and considering that all data collection activities were overseen by a senior administrator, the integrity of the data appears well supported.

Each measure significantly predicted general and violent recidivism, with correlations generally being in the .40 to .50 range and AUCs in the mid .70s to low .80s, which would seem consistent with the predictive accuracy statistics reported in the young offender risk literature and indicating a fairly strong ability of the instruments in predicting general and violent reoffending. Additional analyses designed to examine the relative contributions of the

three risk measures for predicting violent and general recidivism did not suggest that any one given measure necessarily predicted violence significantly better after controlling for the other. All three demonstrated predictive validity for future violent and general recidivism among both males and females, and with Aboriginal youth. By contrast, none of the measures attained significant predictive accuracy in the much smaller non-Aboriginal subsample, although the very small cell size of this group likely diminished power so significantly so as to preclude finding anything but a very large effect. Concerning developmental level or age, the three risk measures had strong, significant predictive accuracy for both outcomes among younger adolescents (i.e., 12-15 year olds). The predictive validity correlations for older adolescents (i.e., 16-17 year-olds) were comparable in magnitude for general recidivism, although smaller, and non-significant, in the prediction of violence. Again, owing to smaller cell sizes, it is anticipated that power was an issue given that correlations of moderate magnitude (i.e., .30-range) would ordinarily attain significance in a larger sample.

With regard to the VRS-YV in particular, the overall predictive accuracy for violent (e.g., AUC = .78) and general (e.g., AUC = .81) recidivism is similar to that reported for the parent instrument (e.g., AUCs = .74 for both general and violent recidivism at 2 years follow-up; Wong & Gordon, 2006). Put simply, an AUC of .78 for violence on the VRS-YV would be interpreted to mean there to be a 78% chance that a randomly selected violent recidivist would have a higher score on this measure than a randomly selected non-recidivist, and represents a "large" effect size (Rice & Harris, 2005).

Individual scale components also demonstrated strong predictive accuracy for violent and general recidivism; however, factors or domains designed to capture family functioning

(e.g., VRS-YV Family Problems and YLS/CMI Family/parenting) tended to be relatively weak predictors. Moreover, the static component of the VRS-YV appeared to have substantially lower predictive accuracy for violent and general recidivism than the dynamic component. These findings are consistent with the postdictive validity findings and similarly, it is possible that the small number of static items may lack content validity and explain little risk variance. Moreover, file information pertaining to past functioning and current family dynamics may be of inconsistent quality.

Further analysis of VRS-YV individual items revealed that two static items - Early onset of antisocial behavior and Instability of family upbringing - failed to predict both outcomes. As the Family Problems factor has already been identified as being a relatively weak predictor, it is perhaps more surprising that a risk factor generally considered to be a robust predictor of reoffending (i.e., age of onset of antisocial behavior) did not predict strongly. It is possible that insufficient power owing to a limited sample size contributed to the nonsignificant findings, since correlations of that magnitude (e.g., $r = .16$ and $.22$) are routinely found to be significant in larger samples (Wormith et al., 2007). It is also possible that the predictive validity of this item may have been undermined by idiosyncratic features of the sample (e.g., high risk), and it is worth further noting that other researchers have also found that common static variables (e.g., offense history) did not predict future violence in a sample of high risk violent juvenile offenders (Kruh, Frick, & Clements, 2005).

Several dynamic variables also failed to predict both outcomes including: Poor emotional control; Weapon use; Mental disorder; Impulsivity/attention deficits; and Poor parent/child interaction. Potential contributing factors underlying low predictive validity would seem to include insufficient power and possible Type II errors (i.e., retaining a false

null hypothesis when an effect is present) (e.g., Poor emotional control, Impulsivity/attention deficits, Weapon Use), low base rate items (e.g., Mental disorder), and low *ICC*s (e.g., Poor parent/child interaction, Mental disorder). Again, for items with low *ICC*s, it may also be that information required to most accurately rate these items was not included in the files.

On the other hand, Antisocial behavior in the family, Institutional violence, Cognitive distortions, Insight, and Family stress appeared to be relatively strong predictors of violence. Moreover, the frequency with which violent recidivists and violent non-recidivists were rated as having a given dynamic variable criminogenic (i.e., rated 2 or 3) was also examined. While violent recidivists were more likely than non-recidivists to have received a 2 or 3-point rating on the majority of VRS-YV items, only Violent lifestyle, Antisocial peers, and Institutional violence, approached or achieved significance after correcting for familywise error. As such, it seems violent recidivists were more likely to be leading a lifestyle characterized by violence, associating with negative peers, and would have served a custodial disposition during which they engaged in violent and/or disruptive behaviors. As has been alluded to earlier, it is possible that some of these youth are gang-involved, as this could produce high scores on two of the three items (i.e., Violent Lifestyle and Antisocial Peers) and may be a factor in the third (Institutional violence).

Risk bins were also created on the basis of VRS-YV total scores and as influenced by past VRS research (Burt, 2000; Wong & Gordon, 2006). As with the parent instrument, a linear relationship was observed between risk classification (i.e., low, medium, high) and recidivism, indicating significant predictive validity. Survival analyses further confirmed that the VRS-YV was able to differentiate those who were more likely to recidivate (generally and violently) and more likely to do so more quickly. Low, medium, and high risk groups

could also be meaningfully differentiated in terms of their violent reoffending patterns during the 36-month follow-up. These results, although preliminary, are encouraging given that the use of risk cutoffs has important applications in clinical practice (e.g., level of supervision, intensity of treatment).

Finally, the dynamic component of the VRS-YV made strong and significant incremental contributions to the prediction of violence, while the static component did not. This finding would suggest that the dynamic variables contribute unique variance in the prediction of violence beyond the static variables, although this was not unanticipated given the much larger number of dynamic variables, which would amount to greater content validity and account for a greater proportion of variance in violence risk. This, however, does not fully capture the potential utility of the dynamic variables which are intended to inform treatment and assess change. The findings, although encouraging, would be bolstered through future research on a larger sample examining the relationship between changes on the dynamic variables and possible reductions in violent recidivism. While it would seem that the post-treatment dynamic items, which incorporate change-related information, did not predict recidivism better than the pre-treatment items, the exceptionally small size of this subsample precludes meaningful interpretation of these findings with much confidence.

The bulk of these findings provide preliminary support for the ability of the VRS-YV to identify relevant criminogenic needs (i.e., by virtue of observed convergent validity correlations with two established youth measures) and to predict violent and general recidivism in a sample of violent young offenders. With the limited sample size and preliminary nature of the study in mind, the results, interpreted cautiously, raise the possibility that the VRS-YV, YLS/CMI, and PCL-YV can predict violent and general

recidivism among a diverse sample of youth that includes both male and female, Aboriginal, and community-based youth, living in the province of Saskatchewan. As such, attempts to generalize these findings to other samples should be done with caution.

4.5 *Analysis of Change*

Unfortunately, sufficient treatment information was available for only a small number of youth ($n = 39$), and recidivism information could only be obtained for approximately half of those who were given stages of change ratings on VRS-YV items deemed criminogenic ($n = 22$). As such, change analyses were highly exploratory in nature, and further investigation is required in order to determine whether changes in risk are related to reductions in recidivism, that is, the extent to which the dynamic variables are indeed dynamic.

Firstly, aside from being more recent, there was no particular reason to expect that cases with change ratings were systematically different from those without change ratings. Consistent with this notion, mean scores on all forensic measures were comparable to the total sample.

Secondly, youths appeared to demonstrate some movement on the dynamic items of the VRS-YV over treatment. The majority of the youths' criminogenic needs were rated at Precontemplation at the beginning of treatment, and then appeared more evenly distributed across more advanced stages of change (e.g., Contemplation, Preparation) at post-treatment. The average change score was roughly equivalent to advancing one stage of change across six VRS-YV criminogenic need areas, although without a larger sample, it is hard to evaluate whether the nature and amount of such change is meaningful.

Despite the limited sample size, trends for the change results tended to be in the expected direction across several of the analyses. For instance, change scores were unrelated to pre-treatment risk, suggesting that youths may have been apt to make changes irrespective of their risk level while entering treatment. Change scores were also negatively correlated with the dynamic item total at post-treatment, suggesting that increased change may be associated with decreases in score. Change scores were also positively correlated with number of sessions attended and, to a lesser degree, the length of time in treatment – that is, it seems more treatment was associated with larger change ratings (i.e., possible "dosage effect").

With respect to outcome, change scores were negatively correlated with any new violent disposition and number of new violent dispositions, and were positively correlated with time to first violent disposition, although these results were not significant. Change was significantly positively correlated with time to any new disposition, suggesting that increased change might be associated with increased time in the community until any new disposition. Finally, while it would seem that the post-treatment dynamic items, (which incorporate change-related information), did not predict recidivism better than the pre-treatment items, the exceptionally small nature of the sample precluded meaningful interpretation of these findings with much confidence.

Overall, preliminary findings suggest that this small subsample of youths may have shown some violence risk reduction with treatment given their change in score, although a better test would be to examine whether these changes made on the dynamic variables are indeed linked to reductions in violent recidivism. Given that the trends for the change results tended to be in the anticipated direction across several of the analyses (in particular, those

pertaining to violence), a necessary further step would be to examine the predictive validity of change on a considerably larger sample, where there would be sufficient power to detect a possible effect and a more definitive statement could be made regarding the dynamic potential of dynamic variables.

GENERAL DISCUSSION

1. Conclusion

Taken together, the preceding analyses appear to offer preliminary support for the inter-rater reliability, internal consistency, and factorial validity of the VRS-YV. Item-analyses (i.e., item-total correlations, inter-item correlations) also demonstrated that the static and dynamic items of the VRS-YV had acceptable psychometric properties. Preliminary support was further obtained for the convergent validity of the tool, as well as multiple forms of criterion-related validity, including the postdiction of past violence and prediction of future violence. Generally speaking, the predictive accuracy of the VRS-YV seems comparable to existing standardized youth measures (YLS/CMI and PCL-YV) and appears consistent with the parent instrument on which it is based (VRS). However, caution is warranted when interpreting and generalizing these findings, owing to possible idiosyncratic characteristics of this small "real world" clinical sample. Follow-up research with different samples may serve to build up the normative base and extend the veracity of the findings. Finally, a necessary further step would be to examine the predictive validity of change ratings on considerably larger samples, where there would be sufficient power to detect a possible effect.

1.1 *Limitations and Directions for Future Research*

As has been discussed at various points throughout the preceding pages, the present study is not without limitations. Methodological limitations in regard to data collection include study design (i.e., retrospective, archival in nature), inconsistent file quality (particularly in the case of older files and treatment referrals), possible sampling bias (i.e., biases in selection procedure, systematic differences between retained and discarded cases),

small sample size (especially for certain demographic groups and certain analyses), difficulty accessing complete follow-up data, and limited knowledge of the databases managed by community partners. An additional limitation, not yet mentioned, involves rating all three instruments consecutively. It is possible that knowledge of one instrument could contaminate ratings on another, as a rater may start to recognize common constructs measured by similar items (e.g., YLS/CMI Peer relations and VRS Antisocial peers). This may serve to inflate correlations, as could the procedures used for handling missing data (e.g., inserting the average item value for each case). However, these limitations are likely tempered by the fact that a small percentage of ratings were conducted in "real time" as part of clinical service provision and hence, were rated independently from other instruments and had strong interrater reliability with file based assessments. In addition, prorating is common practice to account for missing data and is employed with the adult VRS. Finally, issues pertaining to high and low base rates, and insufficient power were also observed. Many of these shortcomings reflect the problems inherent to conducting research in a real world setting.

However, one of the most serious limitations is arguably the lack of stages of change ratings. A large part of the rationale for examining the psychometric properties of the VRS-YV in the first place was its proposed unique ability to link assessment and treatment and measure therapeutic change. However, due to several of the limitations identified above (e.g., inconsistent file quality), potential evidence attesting as to whether changes on VRS-YV dynamic variables are linked to changes in recidivism risk was quite weak. Although general trends were in expected directions across some analyses, the exceptionally small size of the sample prevented meaningful interpretation of these findings. Thus, while the present study constitutes a necessary first step in the validation of the VRS-YV, more psychometric data on

VRS-YV change ratings, including interrater reliability, is needed to support the potentially unique applications of this tool.

Another possible shortcoming related to the change data, concerns possible rater bias. As is the case with the VRS family of tools, post-treatment ratings are based on the amount of progress in relation to the pre-treatment ratings. Thus, it is possible that exposure to pre-treatment stage of change ratings could bias one's post-treatment ratings. For instance, a rater may be compelled to see therapeutic movement in a patient who spends a lengthy period of time in treatment. Moreover, in the absence of outcome data, it would be difficult to determine if the change ratings were valid (i.e., as valid ratings should be associated with reductions in recidivism), although a future alternative could involve incorporating a second measure of change or validating change ratings against another external criterion (e.g., parent or teacher report).

Future research incorporating richer, more complete data, as could be reasonably obtained by supplementing archival data with information collected via interview, is likely to reduce missing data and incomplete ratings and result in more accurate assessments. Such data, when collected in the context of a coordinated treatment program, may also allow for better stages of change ratings. As has been mentioned, better change ratings on a larger sample are required to test whether or not changes on the VRS-YV dynamic variables, such as those that may arise through participation in a treatment program, are linked to changes in violence risk (e.g., reductions in violent recidivism). More psychometric data for VRS-YV change ratings are also needed (e.g., interrater reliability). Finally, more comprehensive outcome data are required to better establish predictive validity for future violence and to provide direct evidence that VRS-YV dynamic variables can be considered as causal risk

factors. Part of this could include extending the follow-up into adult years, especially since older youths (e.g., age 16 or 17) tend to have shorter follow-up times when only adolescent recidivism data are collected.

An ideal approach would be to employ a truly prospective research design with interviews and multiple assessment tools (to further examine construct validity) completed pre- and post- treatment, on a large and diverse sample of youth who are receiving violence reduction treatment through a well articulated, evidence-based, institutional and/or community treatment program. Yet a further approach could involve re-administering and re-rating several measures (including the YLS/CMI and PCL-YV) at multiple time points to capture possible changes in risk, and to evaluate whether such changes converge with VRS-YV ratings of change and/or happen to be meaningful.

A further fruitful avenue of future research would be to conduct a confirmatory factor analysis on a larger, independent sample. To provide further support for the construct validity for the instrument as a whole, the derived factors could be correlated with other well-established measures of behavioral pathology in adolescents. Moreover, a second study on a larger validation study could also "fill in the holes," or provide a more comprehensive and thorough examination of the psychometric properties of individual items (e.g., Early onset of antisocial behavior, Poor parent/child interaction), which in turn could assist in refining the tool (e.g., enhancing certain item descriptions) for further use.

Continued research on different samples would also serve to build up the normative base and extend the generalizability of the findings. The participants comprising the present sample appear to be unique in many ways (e.g., high-need, receiving services from a community mental health clinic). While these features on the one hand seem to make this

sample atypical and may call into question its potential for generalizability (e.g., low risk youth), in many respects this limitation could also be construed as a strength (e.g., a "real-world" clinical sample) as discussed in the following section.

1.2 *Strengths and Potential Contributions*

The aforementioned limitations notwithstanding, the present study also appears to have some strengths. For the most part, the instrument's development occurred independently of its subsequent validation, which is arguably a relatively unique methodological strength (as using the same construction and validation sample may inflate prediction). The study also had a longer than average follow-up time and used a conservative estimate of recidivism (i.e., court adjudicated conviction with a sentence imposed). High interrater reliability was observed for all three measures as rated by practicing clinicians with diverse training backgrounds currently working with young offender clientele. Moreover, the primary investigator was blind to recidivism information until after all other data had been collected, and the outcome data were also provided by an independent source. (Clearly, knowledge of the outcome in advance could seriously bias the ratings.)

Finally, the participants, although not necessarily representative of the young offender population in Saskatchewan, do not appear unlike the clientele whom forensic practitioners (particularly those in the province of Saskatchewan), are often asked to provide risk assessments and implement violence reduction interventions, and for whom the VRS-YV was designed (e.g., violence-prone, high risk-need young offenders with criminal histories). Moreover, the present study included a diverse sample of youths. The sample is roughly evenly divided between males and females and much of the sample is comprised of Aboriginal youth. Given the disproportionate representation of young Aboriginal people in

the justice system, it would seem paramount that this group would be well represented in the norms for the tool. Thus, collected data may be used in developing representative norms and may serve to enhance the generalizability of the results.

The present study also represents the first efforts to validate the VRS-YV. What we can conclude, it seems, is that the VRS-YV can assess violence risk with a reasonable degree of predictive accuracy, and that it contains putatively dynamic variables that can serve as treatment targets; we do not, however, have any evidence yet that such variables can change, that such changes (if they do occur) are related to reductions in future violence, and whether such "changes" are clinically relevant. Future research, as described above, would do well to build on the present results and provide evidence for the dynamic validity and clinical utility of the VRS-YV.

Thus, the present study can be construed as a stepping stone of sorts to further inquiry. With future research, it is anticipated that the VRS-YV, as a violence risk assessment and treatment planning measure developed specifically for use with youths, may be able to contribute the following: 1. Improving violence risk assessment, 2. informing treatment planning, 3. evaluating changes in risk over time and as a function of treatment, 4. identifying potential responsivity considerations, 5. assisting in program evaluation activities.

First, the VRS-YV is a tool designed specifically to assess risk for future violence in adolescents. Identifying youths of varying violence risk level (e.g., low, medium, high), can inform decision making including sentencing (e.g., sentence length, custody versus probation), special conditions for community supervision (e.g., weapons prohibitions, abstain from substances, avoid certain peers) or monitoring (e.g., Serious and Habitual Offender

Comprehensive Action Plan), and treatment planning (e.g., identifying a program of appropriate intensity as per the risk principle).

Secondly, it is hoped that future research will support the utility of the VRS-YV in treatment planning, for instance, to refer youths to specialized risk reduction programs such as the High Risk Violent Young Offender Initiative (HRVYOI) or the recently created Intensive Rehabilitative Custody and Supervision (IRCS) Program. Moreover, violence-specific criminogenic needs could possibly be identified to be targeted for treatment.

As articulated in Wong and Gordon (2006) and Olver, Wong, Nicholaichuk, and Gordon (2007), a dynamic risk profile (see Figures 2.1 and 2.5) can also be created for an individual youth as part of a comprehensive clinical risk assessment to assist in identifying in which areas treatment resources could be best invested. Specifically, ratings on dynamic variables can be displayed as the individual's dynamic risk or problem-strength profile. Ratings of 0 and, to some extent, 1 are the individual's strengths, and ratings of 2 and 3 are problem/treatment targets. For instance, a young offender with a history of alcohol problems associated with violence, poor anger controls, and physical assaults occurring within the context of antisocial peer involvement may benefit from services directing toward improving his/her functioning and lowering his/her risk on these dynamic items (e.g., forensic substance abuse treatment, anger management, etc.).

The stages of change model employed for each dynamic item also has the potential to inform treatment delivery through matching the style of intervention delivery with the youth's readiness to change. Risk reduction interventions can then be formulated based on the individual's risk profile and stage of change. For instance, motivational and cognitively based interventions may be directed toward youths primarily in Precontemplation or

Contemplation, whereas more behavioral and skills based approaches could be implemented toward need areas in Preparation. Further, those in Action may be in a good position to do relapse prevention to assist in maintaining gains and developing further coping strategies to mitigate risk and the potential for relapse.

Third, the stages of change model has the potential to assist in the evaluation of changes in violence risk, as stages of change ratings are made on criminogenic items pre- and post-treatment, and changes ratings are summed across each item to generate a total change score representing the amount of risk reduction that has taken place.

Fourth, certain dynamic risk variables are arguably responsivity factors in addition to being criminogenic needs. For instance, a young offender client with a negative attitude towards education (as identified by the similarly named item) may struggle academically, have weak oral and written skills, or possibly even a learning disability. As such, interventions will need to be chosen and delivered carefully, being sensitive to the learning style and cognitive ability of the youth (e.g., concrete behavioral techniques). Similarly, a youth scoring high on Mental disorder will not only have mental health problems linked to violent behavior, but may also require specific therapeutic considerations to fully engage in treatment (e.g., psychotropic medication, hospitalization).

Finally, there is need for more scientifically rigorous studies on violence reduction programming for youth. The VRS-YV has potential to assist in program evaluation efforts. For instance, aggregate change scores may help to provide evidence for the effectiveness of the program in reducing recidivism.

As research continues, it is important to keep in mind that while the VRS-YV is intended to provide a comprehensive appraisal of risk and violence-specific criminogenic

needs, ideally it should be supplemented with other forms of information (e.g., risk assessment measures for general recidivism, paper and pencil measures of criminal attitudes, self-reported violence etc.) and periodically re-administered in order to assess changes in risk classification, criminogenic needs, and responsivity factors, that may have occurred over time as a function of experience or treatment. In comparison to adult offenders, criminally involved youth may demonstrate greater changes (for better or for worse) over shorter time periods, as a result of developmental and/or environmental factors (e.g., maturation). Hence, regular follow-up assessments may be especially important for younger samples, including violence-prone youth. A prospective study incorporating an untreated control group may also help to distinguish changes made in treatment over and above those occurring through natural development and maturation.

2. Some Final Words

Irrespective of the particular study strengths and limitations as outlined above, the assessment of risk, need, and responsivity factors in juveniles at risk of perpetrating future violence is an emergent research area with great potential for clinical application. Although the absence of strong change data is disappointing, to say the least, the VRS-YV remains promising tool in this regard. The results obtained by its adult counterparts (e.g., Olver et al., 2007; Wong & Gordon, 2006) provide further indication about the potential utility of this measure. With its proposed ability to bridge assessment and treatment and capture changes in risk/need as a function of treatment, the VRS-YV has potential to assist frontline clinicians and other relevant authorities, such as those responsible for health, criminal justice, and social policy, to prevent and reduce violent offending behavior among youth in the province of Saskatchewan, and ultimately to reduce violent victimization throughout Canada.

References

Allen, J. S., Rupert, V., Spatafora, K., Windell, J. O., Gaulier, B., & Conti, K. L. (2003). Differentiating violent from nonviolent female offenders using the Jesness Inventory. *Personality and Individual Differences, 35*, 101-108.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.) - *text revision.* Washington, DC: Author.

Andrews, D.A. & Bonta, J. (1995). *The Level of Service Inventory – Revised.* Toronto: Multi-Health Systems.

Andrews, D. A. & Bonta, J. (2003). *The psychology of criminal conduct* (3rd ed.). Cincinnati, OH: Anderson Publishing Co.

Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior, 17*, 19-52.

Andrews, D. A., Bonta, J., & Wormith, S. J. (2004). *The Level of Service/Case Management Inventory (LS/CMI).* Toronto, Canada: Multi-Health Systems.

Andrews, D.A., Bonta, J. & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime and Delinquency, 52,* 7-27.

Andrews, D. A., Zinger, I., & Hoge, R. D. (1990). Does correctional treatment work? A clinically relevant and psychologically informed meta-analysis. *Criminology, 28,* 369–404.

Aos, S., Lieb, R., Mayfield, J., Miller, M., & Pennucci, A. (2004). *Benefits and costs of prevention and early intervention programs for youth.* Olympia, WA: Washington State Institute for Public Policy.

Aos, S., Phipps, P., Barnoski, R., & Leib, R. (2001). *The comparative costs and benefits of programs to reduce crime*. Olympia, WA: Washington State Institute for Public Policy.

Archer, R. P., Vauter Stredny, R., Mason, J. A., & Arnau, R. C. (2004). An examination and replication of the psychometric properties of the Massachusetts Youth Screening Instrument-Second Edition (MAYSI-2) among adolescents in detention settings. *Assessment, 11*, 290-302.

Archwamety, T., & Katsiyannis, A. (1998). Factors related to recidivism among delinquent females at a state correctional facility. *Journal of Child and Family Studies, 7,* 59-67.

Arria, A., Wood, N., & Anthony, J.C. (1995). Prevalence of carrying a weapon and related behaviors in urban choolchildren, 1989 to 1993. *Archives of Pediatrics & Adolescent Medicine,* 149, 1345-1350.

Arseneault, L., Moffitt, T. E., Caspi, A., Taylor, P. J., & Silva, P. A. (2000). Mental disorders and violence in a total birth cohort: results from the Dunedin study. *Archives of General Psychiatry*, 57, 979 -986.

Ascione, F. R. (2001). Animal abuse and youth violence. *OJJDP Juvenile Justice Bulletin*.

Attar, B.K., Guerra, N.G., & Tolan, P.H. (1994, December). Neighborhood disadvantage, stressful life events, and adjustment in urban elementary school children. *Journal of Clinical and Child Psychology*, *23*, 391-400.

Babinski, L. M., Hartsough, C S., & Lambert, N. M. (1999). Childhood conduct problems, hyperactivity-impulsivity, and inattention as predictors of adult criminal activity. *The Journal of Child Psychology and Psychiatry and Allied Disciplines, 40,* 347-355.

Bailey, S. (2002). Violent children: A framework for assessment. *Advances in Psychiatric Treatment, 8,* 97-106.

Baines, M., & Alder, C. (1996). Are girls more difficult to work with? Youth workers' perspectives in juvenile justice and related areas. *Crime & Delinquency, 42*, 467-485.

Barkley, R. A., Fischer, M., Smallish, L., & Fletcher, K. (2004). Young adult follow-up of hyperactive children: Antisocial activities and drug use. *Journal of Child Psychology and Psychiatry, 45,* 195-211.

Barriga, A. Q., Landau, J., Stinson, B., Liau, A., & Gibbs, J. (2000). Cognitive distortion and problem behaviors in adolescents. *Criminal Justice and Behavior, 27,* 36-56.

Bell, C. C., & Jenkins, E. J. (1993). Community violence and children on Chicago's south side. *Psychiatry, 56,* 46-54.

Benda, B. B., Corwyn, R. F., & Toombs, N. J. (2001). Recidivism among adolescent serious offenders: Prediction of entry into the correctional system for adults. *Criminal Justice and Behavior, 28*, 588-613.

Benda, B., & Tollet, C. (1999). A study of serious and persistent offenders among adolescents. *Journal of Criminal Justice, 27,* 111-126.

Bender, D., & Losel, F. (1997). Protective and risk effects of peer relations and social support on antisocial behaviour in adolescents from multi-problem milieus. *Journal of Adolescence, 20,* 661-678.

Beyers, J. M., Loeber, R., Wikstrom, P. H., & Stouthamer-Loeber, M. (2001). What predicts adolescent violence in better-off neighborhoods? *Journal of Abnormal Child Psychology, 29,* 369-381.

Beyers, J. M., & Loeber, R. (2003). Untangling developmental relations between depressed

    mood and delinquency in male adolescents. *Journal of Abnormal Child Psychology,*

    31, 247-266.

Bjerregaard, B. (2002). Self-definitions of gang membership and involvement in delinquent

    activities. *Youth and Society, 34,* 31-54.

Bjorkqvist, K., Lagerspetz, M., & Kaukiainen, A. (1992). Do girls manipulate and boys

    fight? Developmental trends in regard to direct and indirect aggression. *Aggressive*

    Behavior, 18, 117-127.

Bierman, K. L., & Wargo, J. B. (1995). Predicting the longitudinal course associated with

    aggressive–rejected, aggressive (nonrejected), and rejected (nonaggressive) status.

    Development and Psychopathology, 7, 669–682.

Blackburn, A. G., Mullings, J., Marquart, J. & Trulson, C. (2007). The next generation of

    prisoners: Toward an understanding of violent institutionalized delinquents. *Youth*

    Violence and Juvenile Justice, 5, 35-56.

Blumstein, A. (1995). Youth violence, guns, and the illict-drug industry. *Journal of Criminal*

    Law and Criminology, 86, 10-36.

Bonta, J. (1996). Risk-needs assessment and treatment. In A. T. Harland (Ed). *Choosing*

    correctional options that work: Defining the demand and evaluating the supply (pp.

    18-32). Thousand Oaks, CA, US: Sage Publications, Inc.

Bonta, J, Law, M., & Hanson, R. K. (1998). The prediction of criminal and violent

    recidivism among mentally disordered offenders: A meta-analysis. *Psychological*

    Bulletin, 123, 123-142.

Borum, R. Bartel, P., & Forth, A. (2002). *Manual for the Structured Assessment of Violence Risk in Youth (SAVRY). Consultation version.* Tampa: Florida Mental Health Institute, University of South Florida.

Borum, R., & Verhaagen, D. (2006). *Assessing and managing violence risk in juveniles*. New York, NY, US: Guilford Press.

Borduin, C. M., Henggeler, S. W., Blaske, D. M., & Stein, R. J. (1990). Multisystemic treatment of adolescent sexual offenders. *International Journal of Offender Therapy and Comparative Criminology, 34*, 105-113.

Borduin, C. M, Mann, B. J., Cone, L. T., Henggeler, S. W., Fucci, B. R., Blaske, D. M., & Williams, R. A. (1995). Multisystemic treatment of serious juvenile offenders: Long-term prevention of criminality and violence. *Journal of Consulting and Clinical Psychology, 63*, 569-578.

Brame, B., Nagin, D. S., & Tremblay, R. E. (2001). Developmental trajectories of physical aggression from school entry to late adolescence. *The Journal of Psychology and Psychiatry and Allied Disciplines, 42,* 503-512.

Brandt, J. R., Kennedy, W. A., Patrick, C. J., & Curtin, J. J. (1997). Assessment of psychopathy in a population of incarcerated adolescent offenders. *Psychological Assessment, 9,* 429-435.

Brendgen, M., Vitaro, F., Tremblay, R. E., & Lavoie, F. (2001). Reactive and proactive aggression: Predictions to physical violence in different contexts and moderating effects of parental monitoring and caregiving behavior. *Journal of Abnormal Child Psychology, 29,* 293-304.

Brennan, P. A. (1999). Biosocial risk factors and juvenile violence. *Federal Probation, 63*, 58.

Broidy, L., Cauffman, E., Espelage, D., Mazerolle, P., & Piquero, A. (2003). Empathy and offending: The relation between consideration of others and sex differences in offending. *Violence & Victims*, *18*, 503-516.

Bronfenbrenner, U. (1979). *The ecology of human development.* Cambridge, MA: Harvard University Press.

Brunk, M. A., Henggeler, S. W., & Whelan, J. P. (1987). Comparison of multisystemic therapy and parent training in the brief treatment of child abuse and neglect. *Journal of Consulting and Clinical Psychology, 55*, 171-178.

Butler, M. A., Loney, B. R., & Kistner, J. (2007). The Massachusetts Youth Screening Instrument as a predictor of institutional maladjustment in severe male juvenile offenders. *Criminal Justice and Behavior, 34*, 476-492.

Burt, G. (2000). *Predicting violent recidivism of treated offenders using the Psychopathy Checklist-Revised and the Violence Risk Scale.* Unpublished M.A.thesis, University of Saskatchewan, SK., Canada.

Caldwell, M. F., McCormick, D. J., Umstead, D. & Van Rybroek, G. J. (2007). Evidence of treatment progress and therapeutic outcomes among adolescents with psychopathic features. *Criminal Justice and Behavior, 34*, 573-587.

Caldwell, M., Skeem, J., Salekin, R., & Van Rybroek, G. (2006). Treatment response of adolescent offenders with psychopathy features: A 2-year follow-up. *Criminal Justice and Behavior, 33*, 571-596.

Caldwell, M. F. & Van Rybroek, G. J. (2001). Efficacy of a decompression treatment model in the clinical management of violent juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology, 45*, 469-477.

Caldwell, M. F. & Van Rybroek, G. J. (2005). Reducing violence in serious juvenile offenders using intensive treatment. *International Journal of Law and Psychiatry, 28*, 622-636.

Caldwell, M., Skeem, J., Salekin, R., & Van Rybroek, G. (2006). Treatment response of adolescent offenders with psychopathy features: A 2-year follow-up. *Criminal Justice and Behavior, 33*, 571-596.

Caldwell, M. F., Vitacco, M., & Van Rybroek, G. J. (2006). Are violent delinquents worth treating?: A cost-benefit analysis. *Journal of Research in Crime and Delinquency, 43*, 148-168.

Campbell, J. S., Pulos, S., Hogan, M., & Murry, F. (2005). Reliability generalization of the psychopathy checklist applied in youthful samples. *Educational and Psychological Measurement, 65*, 639-656.

Capaldi, D. M. (1991). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys: I. Familial factors and general adjustment at Grade 6. *Development and Psychopathology, 3,* 277-300.

Capaldi, D. M. (1992). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys: II. A 2-year follow-up at Grade 8. *Development and Psychopathology, 4,* 125-144.

Capaldi, D. M., & Patterson, G. R. (1996). Can violent offenders be distinguished from

    frequent offenders? Prediction from childhood to adolescence. *Journal of Research in*

    Crime and Delinquency, 33, 206-231.

Caputo, A. A., Frick, P. J., & Brodsky, S. L. (1999). Family violence and juvenile sex

    offending: The potential mediating role of psychopathic traits and negative attitudes

    towards women. *Criminal Justice and Behavior, 26,* 338-356.

Carlo, G., Raffaelli, M., Laible, D. J. & Meyer, K. (1999). Why are girls less physically

    aggressive than boys? Personality and parenting mediators of physical aggression.

    Sex Roles, 40, 711-729.

Casey, S., Day, A., & Howells, K. (2005). The application of the transtheoretical model to

    offender populations: Some critical issues. *Legal and Criminological Psychology, 10,*

    157-171.

Catalano, R. F., & Hawkins, J. D. (1996). The social developmental model: A theory of

    antisocial behavior. In J. D. Hawkins (Ed.) *Delinquency and crime: Current theories*

    (pp. 149-197). New York: Cambridge University Press.

Catchpole, R., & Gretton, H. (2003). The predictive validity of risk assessment with violent

    young offenders: A 1-year examination of criminal outcome. *Criminal Justice and*

    Behavior, 30, 688-708.

Cauffman, E., & MacIntosh, R. (2006). A rasch differential item functioning analysis of the

    Massachusetts Youth Screening Instrument: Identifying race and gender differential

    item functioning among juvenile offenders. *Educational and Psychological*

    Measurement, 66, 502-521.

Chamberlain, P. (1994). *Family connections: Treatment foster care for adolescents with delinquency*. Eugene, OR: Castalia.

Chamberlain, P., & Reid, J. B. (1998). Differences in risk factors and adjustment for male and female delinquents in treatment foster care. *Journal of Child and Family Studies, 3,* 23-39.

Chamberlain, P., Patterson, G., Reid, J., Forgatch, & Kavanagh, K. (1984) *Behavior Therapy, 15,* 144-155.

Chase, K. A., Treboux, D., O-Leary, D. K., & Strassberg, Z. (1998). Specificity of dating aggression and its justification among high risk adolescents. *Journal of Abnormal Child Psychology, 26*, 467-473.

Clare, P. Bailey, S. & Clark. A. (2000). Relationship between psychotic disorders in adolescence and criminally violent behavior. *The Royal College of Psychiatrists, 177,* 275-279.

Clingempeel, W. G. & Henggeler, S. W. (2003). Aggressive juvenile offenders transitioning into emerging adulthood: Factors discriminating persistors and desistors. *American Journal of Orthopsychiatry, 73*, 310-323.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, J. (1990). Things I have learned (so far). *American Psychologist, 45,* 1304-1312.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159.

Cohen, M. (1998). The monetary value of saving high risk youth. *Journal of Quantitative Criminology, 14,* 5-33.

Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychopathology, 32,* 988-998.

Coie, J. D. (1990). Toward a theory of peer rejection. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 365–401). New York: Cambridge University Press.

Coie, J., Terry, R., Lenox, K., Lochman, J., & Hyman, C. (1995). Childhood peer rejection and aggression as predictors of stable patterns of adolescent disorder. *Development and Psychopathology, 7,* 697–713.

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3: Social, emotional and personality development* (5th ed., pp. 779-862). New York: John Wiley.

Colledge, E., & Blair, R. J. R. (2001). The relationship in children between the inattention and impulsivity components of attention deficit and hyperactivity disorder and psychopathic tendencies. *Personality and Individual Differences, 30,* 1175-1187.

Cooley-Quille, M., & Lorion, R. (1999). Adolescents' exposure to community violence: Sleep and psychophysiological functioning. *Journal of Community Psychology, 27,* 367-375.

Cornell, D., & Loper, A. (1998). Assessmwnt of violence and other high-risk behaviors with a school survey. *School Psychology Review, 27,* 317-330.

Corrado, R. R., Cohen, I. M., Glackman, W., & Odgers, C. (2003). Serious and violent young offenders' decisions to recidivate: An assessment of five sentencing models. *Crime and Delinquency, 49,* 179-200.

Corrado, R., Roesch, R., Hart, S., & Gierowski, J. (2002). *Multi-problem violent youth: A foundation for comparative research on needs, interventions and outcomes.* Amsterdam, Netherlands: IOS Press.

Costigan, S. (1999). *Critical evaluation of the long-term validity of the risk/need assessment and its young offender typology*. Unpublished M.A. Thesis, Lakehead University, Thunder Bay, Ontario.

Cottle, C. C., Lee, R. J., & Heilbrun, K. (2001). The prediction of criminal recidivism in juveniles: A meta-analysis *Criminal Justice and Behavior, 28*, 367-394.

Cribbie, R. A., Gruman, J. A., & Arpin-Cribbie, C. A. (2004). Recommendations for applying tests of equivalence. *Journal of Clinical Psychology, 60,* 1-10.

Cuddy, M. E., & Frame, C. (1991). Comparison of aggressive and nonaggressive boys' self-efficacy and outcome expectancy beliefs. *Child Study Journal, 21,* 135-152.

Cunningham, A. (2000). One step forward: Lessons learned from a randomized study of multisystemic therapy in Canada. Centre for Children & Families in the Justice System, London.

Dembo, R., Schmeidler, J., Nini-Gogh, B., Sue, C. C., Borden, P., & Manning, D. (1998). Predictors of recidivism to a juvenile assessment center: A three year study. *Journal of Child and Adolescent Substance Abuse, 7,* 57-77.

Dembo, R., Turner, C. & Jainchill (2007). An assessment of criminal thinking among incarcerated youths in three states. *Criminal Justice and Behavior, 34,* 1157-1167.

Di Placido, C., Simon, T. L., Witte, T. D, Gu, D., Wong, S. C. P. (2006). Treatment of gang members can reduce recidivism and institutional misconduct. *Law and Human Behavior, 30*, 93-114.

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Dishion, T., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and

behavioral antecedents to early adolescent involvement with antisocial peers.

Developmental Psychology, 2, 172-180.

Dishion, T. J., Patterson, G. R., Griesler, P. C. (1994). Peer adaptation in the development of

antisocial behavior: A confluence model. In L. R. Huesmann (Ed.) *Aggressive

behavior: Current perspectives* (pp. 61-95). New York: Plenum Press.

Dixon, A., Howie, P., & Starling, J. (2004). Psychopathology in female juvenile offenders.

Journal of Child Psychology and Psychiatry, 45, 1150-1158.

Dodge, K. (1980). Social cognition and children's aggressive behavior. *Child Development,

51,* 162-170.

Dodge, K. (1993). Social-cognitive mechanisms in the development of conduct disorder and

depression. *Annual Review of Psychology, 44*, 559-584.

Dodge, K., Bates, J. , & Pettit, G. (1990). Mechanisms in the cycle of violence. Science, 250,

1678 -1683.

Dodge, K. & Coie, J. (1987). Social-information-processing factors in reactive and proactive

aggression in children's peer groups.

Dodge, K. , Price, J., Bachorowski, J., & Newman, J. (1990). Hostile attributional biases in

severely aggressive adolescents. *Journal of Abnormal Psychology, 99*, 385–392.

Douglas, K., Ogloff, J., Nicholls, T., & Grant, I. (1999). Assessing risk for violence among

psychiatric patients: The HCR-20 Violence Risk Assessment Scheme and the

Psychopathy Checklist: Screening Version. *Journal of Consulting and Clinical

Psychology, 67,* 917-930.

Dowden, C, & Andrews, D. (2000). Effective correctional treatment and violent reoffending: A meta-analysis. *Canadian Journal of Criminology, 42*, 449-467.

Dowden, C., Antonowicz, D., & Andrews, D. A. (2003). The effectiveness of relapse prevention with offenders: A meta-analysis. *International Journal of Offender Therapy and Comparative Criminology, 47*, 516-528.

Drake, E. & Barnoski, R. (2006). *Recidivism findings for the juvenile rehabilitation administration's Dialectical Behavior Therapy: Final report.* Olympia, WA: Washington State Institute for Public Policy.

Duncan, R. D., Kennedy, W. A., & Patrick, C. J (1995). Four-factor model of recidivism in male juvenile offenders. *Journal of Clinical Child Psychology, 24,* 250-257.

Eddy, J. M., Whaley, R. B. & Chamberlain, P. (2004). The prevention of violent behavior by chronic and serious male juvenile offenders: A 2-year follow-up of a randomized clinical trial. *Journal of Emotional and Behavioral Disorders, 12*, 2-8.

Edens, J. F. (2006). Unresolved controversies concerning psychopathy: Implications for clinical and forensic decision making. *Professional Psychology: Research and Practice, 37*, 59-65.

Edens, J. F, & Cahill, M. A. (2007). Psychopathy in adolescence and criminal recidivism in young adulthood: Longitudinal results from a multiethnic sample of youthful offenders. *Assessment, 14*, 57-64.

Edens, J. F., Campbell, J. S. (2007). Identifying youths at risk for institutional misconduct: A meta-analytic investigation of the psychopathy checklist measures. *Psychological Services, 4*, 13-27.

Edens, J. F., Campbell, J. S., Weir, J. M. (2007). Youth psychopathy and criminal recidivism: A meta-analysis of the psychopathy checklist measures. *Law and Human Behavior, 31*, 53-75.

Edens, J. F., Skeem, K L., Cruise, K. R., & Caufmann, E. (2001). Assessment of "juvenile psychopathy" and its association with violence: A critical review. *Behavioral Sciences and the Law, 19*, 53-80.

Elliott, D. S., Huizinga, D., & Menard, S. (1989). *Multiple problem youth*. New York: Springer.

Elliot, D. (1994), Serious violent offenders: Onset, developmental course, and termination – the American Society of Criminology Presidential Address. *Criminology, 32,* 1-21.

Esbensen, F., & Huizinga, D. (1991). Victimization and delinquency. *Youth in Society, 23,* 202-228.

Farrell, A. D., & Bruce, S. E. (1997). Impact of exposure to community violence on violent behavior and emotional distress among urban adolescents. *Journal of Child Clinical Psychology, 26,* 2-14.

Farrington, D. P. (1989). Early predictors of adolescent aggression and adult violence. *Violence and Victims, 4,* 79-100.

Farrington, D. P. (1994). Early developmental prevention of juvenile delinquency. *Criminal Behaviour and Mental Health*, *4,* 209 -227.

Farrington, D. P. (2000). Psychosocial predictors of adult antisocial personality and adult convictions. *Behavioral Sciences and the Law, 18,* 605-622.

Farrington, D. P., Jolliffe, D., Loeber, R., Stouthamer-Loeber, M., & Kalb, L. M. (2001). The

    concentration of offenders in families, and family criminality in the prediction of

    boys' delinquency. *Journal of Adolescence, 24,* 579-596.

Farrington, D. P., & Hawkins, J. D. (1991). Predicting participation, early onset, and later

    persistence in officially recorded offending. *Criminal Behavior and Mental Health, 1,*

    1-33.

Farrington, D. P., Loeber, R., Elliott, D. S., Hawkins, J. D., Kandel, D. B., Klein, M. W.,

    McCord, J., Rowe, D. C, & Tremblay, R. E. (1990). Advancing knowledge about the

    onset of delinquency and crime. In B. B. Lahey, Benjamin & A. E. Kazdin (Eds.).

    Advances in clinical child psychology, Vol. 13. (pp. 283-342). New York, NY, US:

    Plenum Press.

Fergusson, D. M., Lynskey, M. T., & Horwood, L. G. (1996). Alcohol misuse and juvenile

    offending in adolescence. *Addiction, 91,* 483-491.

Fitzpatrick, K. M., & Boldizar, J. P. (1993). The prevalence and consequences of exposure to

    violence among African-American youth. *Journal of the American Academic of Child*

    and Adolescent Psychiatry, 32, 424-430.

Flight, J. & Forth, A. (2007). Instrumentally violent youths: The roles of psychopathic traits,

    empathy, and attachment. *Criminal Justice and Behavior (34),* 739-751.

Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., & Target, M. (1995).

    Attachment, the reflective self, and borderline states: The predictive specificity of the

    Adult Attachment Interview and pathological emotional development. In S. Goldberg,

    R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental and clinical*

    perspectives (pp. 233-278). New York: Analytic Press.

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, G., Mattoon, M., Target, M., Gerber, A. (1996). The relationship of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology, 64,* 22-31.

Forth, A. E., Hart, S. D., & Hare, R. D. (1990). Assessment of psychopathy in male young offenders. *Psychological Assessment, 2,* 342-344.

Forth, A., Kosson, D., & Hare, R. (2003). *The Psychopathy Checklist: Youth Version (PCL-YV).* Toronto, ON, Canada: Multi-Health Systems.

Frick, P. J., & Loney, B. R. (1999). Outcomes of children and adolescents with conduct disorder and oppositional defiant disorder. In H. C. Quay and A. Hogan (Eds.) *handbook of disruptive behavior disorders* (pp. 507-524). New York: Plenum.

Frick, P. J., Kimonis, E. R., Dandreaux, D. M., & Farell, J. M. (2003). The 4 year stability of psychopathic traits in nonreferred youth. *Behavioral Sciences and the Law*, *21*, 1-24.

Funk, S. J. (1999). Risk assessment for juveniles on probation: A focus on gender. *Criminal Justice and Behavior, 26,* 44-68.

Gavazzi, S. M., Yarcheck, C. M., & Chesney-Lind, M. (2006). Global Risk Indicators and the Role of Gender in a Juvenile Detention Sample. *Criminal Justice and Behavior, 33*, 597-612.

Gendreau, P., Goggin, C., & Smith, P. (2002). Is the PCL-R really the "unparalleled" measure of offender risk? A lesson in knowledge cumulation. *Criminal Justice and Behavior, 29,* 397-426.

Gendreau, P., Little, T.,&Goggin, C. (1996).A meta-analysis of the predictors of adult offender recidivism: What works! *Criminology*, *34*, 575-607.

Goldstein, A.P. (1986). Psychological skill training and the aggressive adolescent. In S.P.

    Apter & A.P. Goldstein (Eds.), *Youth violence*, (pp. 89-119). New York, NY:

    Pergamon Press.

Goldstein, A. P., & Glick, B. (1987). Aggression replacement training. *Journal of Counseling*

    and Development, 65, 356-362.

Gordon, A. (1998). *The reliability and validity of the Violence Risk Scale – Experimental*

    Version 1. Unpublished masters thesis, University of Saskatchewan, SK., Canada.

Gorman-Smith, D., Tolan, P. H., Zelli, A., & Huesman, L. R. (1996). The relation of family

    functioning to violence among inner city minority youth. *Journal of Family*

    Psychology, 10, 115-129.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and

    developmental problems among inner-city youth. *Development and Psychopathology,*

    10, 101-116.

Gossner, D. & Wormith, J. S. (2007). Prediction of recidivism among young offenders in

    Saskatchewan. *Journal of Police and Security Services, 5,* 70 – 82.

Gretton, H. M., Hare, R. D., & Catchpole, R. E. H. (2004). Psychopathy and offending from

    adolescence to adulthood: A 10-year follow-up. *Journal of Consulting and Clinical*

    Psychology, 72, 636-645.

Gretton, H., McBride, M., Hare, R., O'Shaughnessy, R., & Kumka, G. (2001). Psychopathy

    and recidivism in adolescent sex offenders. *Criminal Justice and Behavior, 28,* 427-

    449.

Grisso, T., Barnum, R., Fletcher, K. E., Cauffman, E., & Peuschold, D. (2001).

    Massachusetts Youth Screening Instrument for mental health needs of juvenile justice

youths. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 541-548.

Grove, W. M., & Meehl, P. E. (1996). Comparative efficiency of informal (subjective, impressionistic) and formal (mechanical, algorithmic) prediction procedures: the clinical–statistical controversy. *Psychology, Public Policy, and Law, 2,*, 293 -323.

Grove, W. M., Zald, D. H., Lebow, B. S., Snitz, B. E., Nelson, C. (2000). Clinical versus mechanical prediction: A meta-analysis. *Psychological Assessment, 12*, 19-30.

Guerra, N. G., & Slaby, R. G. (1990). Cognitive mediators of aggression in adolescent offenders: 2. Intervention. *Developmental Psychology, 26,* 269-277.

Haapasalo, J., & Pokela, E. (1999). Child rearing and child abuse antecedents of criminality. *Aggression and Violent Behavior, 4,* 107-127.

Haggard, U, Gumpert, C. H, & Grann, M. (2001). Against all odds: A qualitative follow-up study of high risk violent offenders who were not reconvicted. *Journal of Interpersonal Violence, 16*, 1048-1065.

Halliday-Boykins, C. A. & Graham, S. (2001). At both ends of the gun: testing the relationship between community violence exposure and youth violent behavior. *Journal of Abnormal Child Psychology, 29,* 383-402.

Hannah-Moffat, K. & Maurutto, P. (2003). *Youth risk/need assessment: An overview of issues and practices*. Report submitted to the Research and Statistics Division Department of Justice Canada.

Hanson, R. K. & Bussiére, M. T. (1996). *Predictors of sexual offender recidivism: A* meta-analysis. Ottawa: Department of the Solicitor General of Canada.

Hanson, R. K., & Bussière, M. T. (1998). Predicting relapse: A meta-analysis of sexual

offender recidivism studies. *Journal of Consulting and Clinical Psychology*, *66*(2), 348-362.

Hanson, R. K., Morton-Bourgon, K. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*, 1154-1163.

Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist (2nd ed.)*. Toronto, ON: Multi-Health Systems.

Harper, G. W. & Robinson, W. L. (1999). Pathways to risk among inner-city African-American adolescent females: The influence of gang membership. *American Journal of Community Psychology, 27,* 383-404.

Harris, G. T., Rice, M. E., & Quinsey, V. L. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior, 20*, 315-335.

Hart, S. D. (1998). The role of psychopathy in assessing risk for violence: Conceptual and methodological issues. *Legal and Criminological Psychology, 3*, 121-137.

Hart, S. D., Michie, C., & Cooke, D. J. (2007). Precision of actuarial risk assessment instruments: Evaluating the 'margins of error' of group v. individual predictions of violence. *British Journal of Psychiatry, 190*(Suppl. 49), s60-s65.

Hawkins, J.D., Herrenkohl, T., Farrington, D.P., Brewer, D., Catalano, R.F., & Harachi, T.W. (1998). A review of predictors of youth violence. In R. Loeber & D. P. Farrington (Eds.), *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions.* Thousand Oaks, CA: Sage Publications, Inc., pp. 106–146.

Hemphill, J. F., Hare, R. D. (2004). Some misconceptions about the Hare PCL-R and risk

    assessment: A reply to Gendreau, Goggin, and Smith. *Criminal Justice and Behavior,*

    31, 203-243.

Hemphill, J. F., Hare, R.D., & Wong, S. (1998). Psychopathy and recidivism: A review.

    Legal and Criminological Psychology, 3, 139-170.

Hemphill, J. F., & Howell, A. J. (2000). Adolescent offenders and stages of change.

    Psychological Assessment, 12, 371-381.

Henggler, S. W. & Bordiun, C. M. (1990). *Family therapy and beyond: A multisystemic*

    approach to treating the behavior problems of children and adolescents. Pacific

    Grove, CA: Brooks/Cole.

Henggeler, S. W., Borduin, C. M., Melton, G. B., Mann, B. J., Smith, L., Hall, J. A., Cone,

    L., & Fucci, B. R. (1991). Effects of multisystemic therapy on drug use and abuse in

    serious juvenile offenders: A progress report from two outcome studies. *Family*

    Dynamics of Addiction Quarterly, 1, 40-51.

Henggeler, S. W., Clingempeel, W. G., Brondino, M. J., & Pickrel, S. G. (2002). Four-year

    follow-up of multisystemic therapy with substance-abusing and substance-dependent

    juvenile offenders. *Journal of the American Academy of Child & Adolescent*

    Psychiatry, 41, 868-874.

Henggeler, S. W., Melton, G. B., Brondino, M. J., Scherer, D. G., & Hanley, J. H. (1997).

    Multisystemic therapy with violent and chronic juvenile offenders and their families:

    The role of treatment fidelity in successful dissemination. *Journal of Consulting and*

    Clinical Psychology, 65, 821-833.

Henggeler, S. W., Melton, G. B., & Smith, L. A. (1992). Family preservation using

multisystemic therapy: An effective alternative to incarcerating serious juvenile

offenders. *Journal of Consulting and Clinical Psychology, 60*, 953-961.

Henggeler, S. W., Melton, G. B., Smith, L. A., Schoenwald, S. K., & Hanley, J. H. (1993).

Family preservation using multisystemic treatment: Long-term follow-up to a clinical

trial with serious juvenile offenders. *Journal of Child and Family Studies, 2*, 283-293.

Henggeler, S. W., Rodick, J. D., Borduin, C. M., Hanson, C. L., Watson, S. M., & Urey, J. R.

(1986). Multisystemic treatment of juvenile offenders: Effects on adolescent behavior

and family interaction. *Developmental Psychology, 22*, 132-141.

Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P.

B. (1998). *Multisystemic treatment of antisocial behavior in children and

adolescents*. New York, NY, US: Guilford Press.

Henry, B., Caspi, A., Moffit, T. E., & Silva, P. A. (1996). Temperamental and familial

predictors of violent and nonviolent criminal convictions: Age 3 and 18.

Developmental Psychology, 32, 614-623.

Herrenkohl, T. , Huang, B., Tajima, E., & Whitney, S. (2003). Examining the link between

child abuse and youth violence: An analysis of mediating mechanisms. *Journal of

Interpersonal Violence, 18*, 1189–1208.

Herrenkohl, T. I., Maguin, E., Hill, K. G., Hawkins, J. D., Abbott, R. D., & Catalano, R. F.

(2000). Developmental risk factors for youth violence. Journal of Adolescent Health,

26, 176-186.

Hinshaw, S. P., & Zupin, B. A. (1997). Assessment of antisocial behavior in children and adolescents. In D. M. Stoff, J. Breiling, and J. D. Maser (Eds.) *Handbook of antisocial behavior* (pp. 36-50). New York: Wiley.

Hoge, R. D., Andrews, D. A., & Leschied, A. W. (1996). An investigation of risk and protective factors in a sample of youthful offenders. *Journal of Child Psychology and Psychiatry, 37,* 419-424.

Hoge, R., & Andrews, D. (2003). *The Youth Level of Service/Case Management Inventory.* Toronto, ON, Canada: Multi-Health Systems.

Hoge, R., Andrews, D. A., & Leschied. A. (2002) *Youth Level of Service / Case Management Inventory: YLS/CMI Manual*. Toronto: Multi-Health Systems.

Hollander, H. E., & Turner, F. D. (1985). Characteristics of incarcerated delinquents: relationship between development disorders, environmental and family factors, and patterns of offense and recidivism. *Journal of the American Academy of Child Psychiatry, 24,* 221-226.

Howell, J. C. (1995). *Guide for implementing the comprehensive strategy for serious, violent, and chronic juvenile offenders.* Washington DC: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Howell, J. C. (1998). Promising programs for youth gang violence: Prevention and Intervention. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 284-312). Thousand Oaks, CA: Sage.

Howell, D. (2002). *Statistical methods for psychology, 5th edition*. Pacific Grove, CA: Duxbury.

Howell, A. J., Reddon, J. R., & Enns, R. A. (1997). Immediate antecedents to adolescents'

offenses. *Journal of Clinical Psychology, 53,* 355-360.

Holsinger, A. M. , Lowenkamp, C. T. , & Latessa, E. J. (2006). Predicting institutional

misconduct using the Youth Level of Service/Case Management Inventory. *American

Journal of Criminal Justice, 30,* 267-284.

Huizinga, D. & Jakob-Chen, C. (1998). The contemporaneous co-occurrence of serious and

violent juvenile offending and other problem behaviors. In R. Loeber & D. P.

Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful

interventions* (pp. 47-67). Thousand Oaks, CA: Sage.

Ilacqua, G. E., Coulson, G. E., Lombardo, D., & Nutbrown, V. (1999). Predictive validity of

the Young Offender Level of Service Inventory for criminal recidivism of male and

female young offenders. *Psychological Reports, 84,* 1214-1218.

Inamdar, S. C., Lewis, D. O., Siomopoulos, G., Shanok, S. S., & Lamela, M. (1982). Violent

and suicidal behavior in psychotic adolescents. *American Journal of Psychiatry, 139,*

932-935.

Inderbitzen-Pisaruk, H., & Foster, S. L. (1990). Adolescent friendships and peer acceptance:

Implications for social skills training. *Clinical Psychology Review, 10,* 425-439.

Jesness, C. F. (1988). The Jesness Inventory classification system. *Criminal Justice and

Behavior, 15*, 78-91.

Jollife, & Farrington, D. F. (2003). Empathy and offending: A systematic review and meta-

analysis. *Aggression and Violent Behavior*, *9*, 441-476.

Johnson, B. D., Wish, E. D., Schmeidler, J., & Huizinga, D. (1991). Concentration of

    delinquent offending: Serious drug involvement and high delinquency rates. *Journal*

    of Drug Issues, 21, 205-291.

Johnson, J. G., Cohen, P., Smailes, E., Kasen, S., Oldham, J. M., Skodol, A. E., & Brook, J.

    S. (2000). Adolescent personality disorders associated with violence and criminal

    behavior during adolescence and early adulthood. *American Journal of Psychiatry,*

    157, 1406-1412.

Jonson-Reid, M. (1998). Youth violence and exposure to violence in childhood: An

    ecological review. *Aggression and Violent Behavior, 3,* 159-179.

Jung, S., & Rawana, E. (1999). Risk and need assessment of juvenile offenders. *Criminal*

    Justice and Behavior, 26, 69-89.

Kataoka, S.H., Zima, B.T., Dupre, D.A., Moreno, K.A., Yang, X., & McCracken, J.T.

    (2001). Mental health problems and service use among female juvenile offenders:

    Their relationship to criminal history. *Journal of the American Academy of Child and*

    Adolescent Psychiatry, 40, 549–555.

Katsiyannis, A., & Archwamety, T. (1997). Factors related to recidivism among delinquent

    youths in a state correctional facility. *Journal of Child and Family Studies, 6,* 43-55.

Katsiyannis, A., Zhang, D., Barrett, D. E., & Flaska, T. (2004). Background and psychiatric

    variables associated with recidivism among adolescent males: A 3-year investigation.

    Journal of Emotional and Behavioral Disorders, 12, 23-29.

Kazdin, A. E. (1990). Conduct disorder in childhood. In M. Hersen and C. G. Last (Eds.)

    Handbook of child and adult psychopathology: A longitudinal perspective. New

    York: Pergamon Press.

Kitchen, P. (2006). Exploring the link between crime and socio-economic status in Ottawa

    and Saskatoon: A small-area geographical analysis. Department of Justice Canada,

    Research and Statistics Division.

Kosky, R.J., Sawyer, M.G., & Gowland, J.C. (1990). Adolescents in custody: Hidden

    psychological morbidity? *The Medical Journal of Australia, 153,* 24-27.

Kosson, D. S., Cysterski, T.D., Steuerwald, B. L., Neumann, C. S., & Walker-Matthews, S.

    (2002). The reliability and validity of the Psychopathy Checklist: Youth Version

    (PCL-YV) in nonincarcerated adolescent males. *Psychological Assessment, 14,* 97-

    109.

Krug, E., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., & Lozano, R. (Eds.) (2002). *World

    report on violence and health*. Geneva, Switzerland: World Health Organization.

Kruh, I. P., Frick, P. J., & Clements, C. B. (2005). Historical and personality correlates to the

    violence patterns of juveniles tried as adults. *Criminal Justice and Behavior, 32*, 69-

    96.

Lahey, B. B., & Loeber, R. (1997). Attention-deficit/hyperactivity disorder, oppositional

    defiant disorder, conduct disorder, and adult antisocial behavior disorder: A life span

    perspective. In D. M. Stoff, J. Breiling, and J. D. Maser (Eds.) *Handbook of

    antisocial behavior* (pp. 51-59). New York: Wiley.

Landsheer, J., & Hart, H. (1999). Age and adolescent delinquency. *Criminal Justice and

    Behavior, 26,* 373-388.

Langstrom, N., & Grann, M. (2001). Psychopathy and violent recidivism among young

    criminal offenders. *Acta Psychiatrica Scandinavia, 106,* 86-92.

Latimer, J., Dowden, C., & Morton-Bourgon, K. E. (2003). *Treating youth in conflict with the law: A new meta-analysis*. Report RR03YJ-3e. Ottawa: Department of Justice, Canada.

Latimer, J. & Foss, L. C. (2005). The sentencing of Aboriginal and Non-Aboriginal youth under the young offenders act: A multivariate analysis. *Canadian Journal of Criminology and Criminal Justice, 47,* 481-500.

Latimer, J. & Foss, L. C. (2004). *A one-day snapshot of Aboriginal youth in custody across Canada: Phase II.* Ottawa: Research and Statistics Division, Department of Justice Canada.

Lattimore, P., Visher, C., & Linster, R. (1995). Predicting rearrest for violence among serious youthful offenders. *Journal of Research in Crime and Delinquency, 32,* 54-83.

Lattimore, P., MacDonald, J., Piquero, A., Linster, R., & Visher, C. (2004). Studying the characteristics of arrest frequency among paroled youthful offenders. *Journal of Research in Crime and Delinquency, 41,* 37-57.

Leistico, A. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large-scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct. *Law and Human Behavior, 32,* 28-45.

Lennings, C. J., Copeland, J., & Howard, J. (2003) Substance use patterns of young offenders and violent crime. *Aggressive Behavior, 29,* 414-422.

Leschied, A. W., Cummings, A., Van Brunschot, M., Cunningham, A., & Saunders, A. (2001). Aggression in adolescent girls: Implications for policy, prevention, and treatment. *Canadian Psychology, 42,* 200-215.

Lewis, K. (2004). The relationship between the URICA and correctional treatment in a

sample of violent male offenders. *Dissertation Abstracts International, 65(03),* 1553B.

Lewis, K., Wong, S., & Gordon, A. (2004). *The Violence Risk Scale: Youth Version (VRS-YV).* Department of Psychology and Research, Regional Psychiatric Centre, Saskatoon, SK., Canada: Solicitor General of Canada.

Limbos, M. A., Chan, L. S., Warf, C., Schneir, A., Iverson, E., Shekelle, P., Kipke, M. D. (2007). Effectiveness of interventions to prevent youth violence: A systematic review. *American Journal of Preventive Medicine, 33*, 65-74.

Linehan, M. (1993). *Skills training manual for treating borderline personality disorder.* New York: Guilford Press.

Lipsey, M. W. (1992a). The effect of treatment on juvenile delinquents: Results from meta-analysis. In F. Losel, D. Bender, & T. Bliesener (Eds.), *Psychology and law: International Perspectives.* (pp. 131-143). Oxford, England: Walter De Gruyter.

Lipsey, M. W. (1992b). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In T. Cook, H. Cooper, & D. S. Corday (Eds.), *Meta-analysis for explanation.* New York, NY: Russell Sage Foundation.

Lipsey, M. W. (1999). Can intervention rehabilitate serious delinquents? *The Annals [of the American Academy of Political and Social Science, 564*, 142-166.

Lipsey, M. W., Chapman, G., & Landenberger, N. A. (2001). Cognitive-behavioral programs for offenders. *The Annals of the American Academy of Political and Social Science, 578*, 144-157.

Lipsey, M. W., & Derzon, J. H. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longitudinal research. In R. Loeber,

Rolf & D. P. Farrington (Eds.), *Serious & violent juvenile offenders: Risk factors and successful interventions*. (pp. 86-105). Thousand Oaks, CA, US: Sage Publications, Inc.

Lipsey, M. W., & Wilson, D. B. (1998). Effective intervention for serious juvenile offenders. In R. Loeber & D. P. Farrington (Eds.) *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 313–345). Thousand Oaks, CA: Sage.

Lipsey, M. W., Wilson, D. B., Cohen, M. A., & Derzon, J. H. (1997). Is there a causal relationship between alcohol use and violence? A synthesis of evidence. In M. Galanter (Ed.), *Recent developments on alcoholism: Vol. 13. Alcohol and violence* (pp. 245-282). New York: Plenum.

Lochman, J., & Dodge, K. A. (1994). Social-cognitive processes of severely violent, moderately aggressive, and nonaggressive boys. *Journal of Consulting and Clinical Psychology, 62,* 366-74.

Loeber, R. (1990). Development and risk factors of juvenile antisocial behavior and delinquency. *Clinical Psychology Review, 10,* 1-41.

Loeber, R., Russo, M. F., Stouthamer-Loeber, M., & Lahey, B. (1994). Internalizing problems and their relation to the development of disruptive behaviors in adolescence. *Journal of Research on Adolescence, 4,* 615-637.

Loeber, R. & Dishion, T. (1983). Early predictors of male delinquency: A review. *Psychological Bulletin, 94,* 68-99.

Loeber, R., & Farrington, D. (1998). *Serious and violent juvenile offenders: Risk factors and successful interventions.* Thousand Oakes, CA., United States of America: Sage Publications Inc.

Loeber, R. & Farrington, D. P. (2000). Young children who commit crime: Epidemiology,

    developmental origins, risk factors, early interventions, and policy implications.

    Development and Psychopathology, 12, 737-762.

Loeber, R. & Hay, D. F. (1996/7). Key issues in the development of aggression and violence

    from childhood to early adulthood. *Annual Review of Psychology, 48,* 371-410.

Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of

    juvenile conduct problems and delinquency. In M. Tonry & N. Morris (Eds.), *Crime*

    and justice: An annual review of research (Vol. 7, pp. 29-149). Chicago:

    University of Chicago Press.

Loeber, R., & Stouthamer-Loeber, M. (1987). Prediction. In H. C. Quay (Ed.) *Handbook of*

    juvenile delinquency (pp. 325-382). New York: John Wiley.

Luke, D., & Homan, S. (1998). Time and change: Using survival analysis in clinical

    assessment and treatment evaluation. *Psychological Assessment, 10,* 360-378.

Luong, D. (2007). *Risk assessment and community management: The relationship between*

    implementation quality and recidivism. Unpublished M.A. Thesis, University of

    Saskatchewan, Saskatoon, Saskatchewan, Canada.

Lynam, D. (1996). Early identification of chronic offenders: Who is the fledgling

    psychopath? *Psychological Bulletin, 120*, 209–234.

Lynam, D. (1997). Pursuing the psychopath: Capturing the fledgling psychopath in the

    nomological net. *Journal of Abnormal Psychology, 106,* 425-438.

Lynam, D., Wikstrom, P., Caspi, A., Moffitt, T., Loeber, R., & Novak, S. (2000). The

interaction between impulsivity and neighborhood context on offending: The effects of impulsivity are stronger in poorer neighborhoods. *Journal of Abnormal Psychology*, *109*, 563-574.

Maguin, E., Hawkins, J. D., Catalano, R. F., Hill, K., Abbott, R., & Herrenkohl, T. (1995). Risk factors measured at three ages for violence at age 17-18. Paper presented at the American Society of Criminlogy, Boston.

Marczyk, G. R., Heilbrun, K., & Lander, T., DeMatteo, D. (2003). Predicting juvenile recidivism with the PCL-YV, MAYSI, and YLS/CMI. *International Journal of Forensic Mental Health, 2*, 7-18.

Marczyk, G. R, Heilbrun, K., Lander, T., & DeMatteo, D. (2005). Juvenile decertification: Developing a model for classification and prediction. *Criminal Justice and Behavior, 32*, 278-301.

Marshall, J., Egan, V., English, M., & Jones, R. (2006). The relative validity of psychopathy versus risk/needs-based assessments in the prediction of adolescent offending behavior. *Legal and criminological psychology, 11,* 197-210.

Martinson, R. (1974). What works? - Questions and answers about prison reform. *The Public Interest, 35,* 22-54.

McCoy, W. K., & Edens, J. F. (2006). Do black and white youths differ in levels of psychopathic traits? A meta-analysis of the Psychopathy Checklist measures. *Journal of Consulting and Clinical Psychology, 74,* 386-392.

Megargee, E. I. (1966). Undercontrolled and overcontrolled personality types in extreme antisocial aggression. *Psychological Monographs, 80* (3, whole No. 611).

Meehl, P. E. (1954). *Clinical versus statistical prediction: A theoretical analysis and a review of the evidence*. Minneapolis, MN, US: University of Minnesota Press.

Meyer, G. J., Finn, S. E., Eyde, L. D., Kay, G. G., Moreland, K. L., & Dies, R. R., et al. (2001). Psychological testing and psychological assessment: A review of evidence and issues. American Psychologist, 56, 128–165.

Miller, J. & Lin, J. (2007). Applying a generic juvenile risk assessment instrument to a local context: Some practical and theoretical lessons. *Crime and Delinquency, 53,* 552-580.

Mitchell, S., & Rosa, P. (1979). Boyhood behavior problems as precursors of criminality: A fifteen year follow-up study. *Journal of Child Psychology and Psychiatry, 22,* 19-33.

Moffitt, T. E. (1993). Adolescent limited and life course persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100,* 674-701.

Moffitt, T. E., Caspi, A., Dickson, N., Silva, P., & Stanton, W. (1996). Childhood-onset versus adolescent-onset antisocial conduct problems in males: Natural history from ages 3 to 18 years. *Development and Psychopathology, 8*, 399-424.

Moffit, T. E., Caspi, A., Rutter, M., & Silva, P. A. (2001). *Sex differences in antisocial behavior: Conduct disorder, delinquency, and violence in the Dunedin longitudinal study.* Cambridge University Press.

Monahan, J., Steadman, H., Silver, E., Applebaum, P., Robbins, P., Mulvey, E., et al. (2001). *Rethinking risk assessment: The MacArthur study of mental disorder and violence.* New York: Oxford University Press.

Moore, T. & Stuart, G. (2003). A review of the literature on marijuana and interpersonal violence. *Aggression and Violent Behavior, 10,* 171-192.

Morera, O. F., Johnson, T. P., Freels, S., Parsons, J., Crittenden, K. S., Flay, B. R., & Warnecke, R. B. (1998). The measure of stage of readiness to change: Some psychometric considerations. *Psychological Assessment, 10,* 182-186.

Mossman, D. (1994a). Assessing predictions of violence: Being accurate about accuracy. *Journal of Consulting and Clinical Psychology, 62,* 783-792.

Mossman, D. (1994b). Further comments of portraying the accuracy of violence predictions. *Law and Human Behavior, 18,* 587-594.

Mossman, D., & Somoza, E. (1991). ROC curves, test accuracy, and the description of diagnostic tests. *Journal of Neuropsychiatry and Clinical Neurosciences, 3,* 330-333.

Motiuk, L. L. (1997). Classification for correctional programming: The Offender Intake Assessment process. *Forum on Corrections Research, 9*, 18-22.

Murphy, K., & Davidshofer, C. (1994). *Psychological testing: Principles and applications* (3rd ed.). Englewood Cliffs, NJ, USA: Prentice-Hall, Inc.

Myner, J., J. Santman, G. G. Cappelletty, & Perlmutter, B. F. (1998). Variables related to recidivism among juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology, 42,* 65-80.

Nagin, D. & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and non violent juvenile delinquency. *Child Development,* 70, 1181-96.

Niarhos, F. J., & Routh, D. K. (1992). The role of clinical assessment in the juvenile court: predictors of juvenile dispositions and recidivism. *Journal of Child and Adolescent Psychology, 21,* 151-159.

Neumann, C. S., Kosson, D. S., Forth, A. E. & Hare, R. D. (2006). Factor structure of the

    Hare Psychopathy Checklist: Youth Version (PCL: YV) in incarcerated adolescents.

    Psychological Assessment, 18, 142-154.

Nuffield, J. (1982). *Parole decision making in Canada: Research towards decision*

    guidelines. Ottawa, Solicitor General of Canada.

Nicholls, T. L., Brink, J., Desmarais, S. L, Webster, C. D., Martin, M. (2006). The short-

    term assessment of risk and treatability (START): A prospective validation study in a

    forensic psychiatric sample. *Assessment, 13(3)*, 313-327.

O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components

    using parallel analysis and Velicer's MAP test. *Behavior Research Methods,*

    Instruments, & Computers, 32, 396-402.

Odgers, C. L., Reppucci, N. D., Moretti, M. M. (2005) Nipping psychopathy in the bud: An

    examination of the convergent, predictive, and theoretical utility of the PCL-YV

    among adolescent girls. *Behavioral Sciences & the Law, 23*, 743-763.

Olver, M. E. (2003). *The development and validation of the Violence Risk Scale: Sexual*

    Offender Version (VRS:SO) and its relationship to psychopathy and treatment

    attrition. Unpublished doctoral dissertation, University of Saskatchewan, Saskatoon,

    Saskatchewan, Canada.

Olver, M. E., & Wong, S. C. P. (2006). Psychopathy, sexual deviance, and recidivism among

    sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 18*, 65–82.

Olver, M. E., Wong, S. C., Nicholaichuk, T., Gordon, A. (2007). The validity and reliability

    of the Violence Risk Scale – Sexual Offender version: Assessing sex offender risk

    and evaluating therapeutic change. *Psychological Assessment, 19,* 318-29.

Osgood, D. W., & Anderson, A. L. (2004). Unstructured socializing and rates of delinquency. *Criminology, 42,* 519-550.

Osofsky, J. D., Wewers, S., Hann, D. M., & Fick, A. C. (1993). Children's exposure to chronic community violence: What is happening to our children? *Psychiatry, 56,* 36-45.

Paikoff, R. L. (1995). Early heterosexual debut: Situations of sexual possibility during the transition to adolescence. *American Journal of Orthopsychiatry, 65,* 389-401.

Parker, J., & Asher, S. (1987). Peer relations and later personal adjustment. *Psychological Bulletin, 102,* 357-389.

Patterson, G. R., DeGarmo, D. S., & Knutson, N. (2000). Hyperactive and antisocial behaviors: Comorbid or two points in the same process? *Development and Psychopathology, 12,* 91-106.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys: A social interactional approach (vol. 4).* Eugene, OR: Castalia.

Patterson, G., & Stouthamer-Loeber, M. (1984). The correlation of family management practices anddelinquency. *Child Development*, *55,* 1299-1307.

Pliszka, S.R., Sherman, J.O., Barrow, M.V., & Irick, S. (2000). Affective disorder in juvenile offenders: A preliminary study. *The American Journal of Psychiatry, 157,* 130–132.

Plummer, B. A., Velicer, W. F., Redding, C. A., Prochaska, J. O., Rossi, J. S., Pallonen, U. E., & Meier, K. S. (2001). Stage of change, decisional balance and temptations for smoking. Measurement and validation in a large, school-based population of adolescents. *Addictive Behaviors, 26*, 551-571.

Preski, S., & Shelton, D. (2001). The role of contextual, child, and parent factors in

    predicting criminal outcomes in adolescence. *Issues in Mental Health Nursing, 22,*

    197-205.

Prochaska, J. O. (1994). Strong and weak principles for progressing from precontemplation

    to action on the basis of twelve problem behaviors. *Health Psychology, 13*, 47-51.

Prochaska, J. O. (2000). Change at differing stages. In C. R. Snyder & R. E. Ingram, Rick

    (Eds.), *Handbook of psychological change: Psychotherapy processes & practices for*

    the 21st century. Hoboken, NJ, US: John Wiley & Sons Inc.

Prochaska, J. O., & DiClemente, C. C. (1984). *The transtheoretical approach: Crossing*

    traditional boundaries of therapy. Homewood, IL: Dow Jones–Irwin.

Prochaska, J., DiClimente, C., & Norcross, J. (1992). In search of how people change:

    Applications to addictive behaviors. *American Psychologist*, *47*, 1102-1114.

Prochaska, J. O. & Norcross, J. C. (1994). *Systems of psychotherapy: A transtheoretical*

    analysis (3rd ed.). Belmont, CA, US: Thomson Brooks/Cole Publishing Co.

Prochaska, J. O., & Norcross, J. C. (2001). Stages of change. *Psychotherapy: Theory,*

    Research, Practice, Training, 38, 443-448.

Quinsey, V., Harris, G., Rice, M., & Cormier, C. (1998). *Violent offenders: Appraising and*

    managing risk. Washington, DC., United States of America: American Psychological

    Association.

Randall, J., & Cunningham, P. B. (2003). Multisystemic therapy: A treatment for violent

    substance-abusing and substance-dependent juvenile offenders. *Addictive Behaviors,*

    28, 1731-1739.

Rasmussen, L. A. (1999). Factors related to recidivism among juvenile sex offenders. *Sexual Abuse: A journal of Research and Treatment, 11,* 69-85

Rice, M. E. (1997). Violent offender research and implications for the criminal justice. *American Psychologist, 52,* 414-423.

Rice, M. E., & Harris, G. T. (1995). Violent recidivism: Assessing predictive validity. *Journal of Consulting and Clinical Psychology, 63,* 737-748.

Rice, M. E., & Harris, G. T. (1996). Predicting recidivism of mentally disordered firesetters. *Journal of Interpersonal Violence, 11,* 364-375.

Richards, I. (1996). Psychiatric disorder among adolescents in custody. *Australian and New Zealand Journal of Psychiatry, 30,* 788–793.

Richters, J. E., & Martinez, P. (1993). The NIMH Community Violence Project: I. Children as victims of and witnesses to violence. *Psychiatry, 56,* 7-21.

Robins, R. W., John, O. P., & Caspi, A. (1998). The typological approach to studying personality. In R. B. Cairns, and L. R. Bergman (Eds.), *Methods and models for studying the individual* (pp. 135-160). Thousand Oaks, Ca: Sage.

Robins, R. W., John, O. P., Caspi, A., Moffitt, T. E., & Stouthamer-Loeber, M. (1996). Resilient, overcontrolled, and undercontrolled boys: Three replicable personality types. *Journal of Personality and Social Psychology, 70,* 157–171.

Robinson, D., Porporino, F., & Beal, C. (1998). A review of the literature on personal/emotional need factors (R-76).

Ross, R.R., & Fabiano, E. (1985). *Time to think: A cognitive model of delinquency prevention and offender rehabilitation*. Johnson City, Tennessee: Institute of Social Sciences and Arts, Inc.

Rossow, I., Pape, H., & Wichstrom, L. (1999). Young, wet & wild? Associations between

  alcohol intoxication and violent behavior in adolescence. *Addiction, 94,* 1017-1031.

Rutter, M., & Quniton, D. (1984). Parental psychiatric disorder: Effects on children.

  Psychological Medicine, 14, 853-880.

Salekin, R. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality?

  Clinical Psychology Review, 22, 79-112.

Salekin, R. T, Brannen, D. N., Zalot, A. A., Leistico, A., & Neumann, C. S. (2006). Factor

  structure of psychopathy in youth: Testing the applicability of the new four-factor

  model. *Criminal Justice and Behavior, 33*, 135-157.

Salekin, R. T., Leistico, A. R., Neumann, C. S., DiCicco, T. M., Duros, R. L. (year?)

  Psychopathy and comorbidity in a young offender sample: Taking a closer look at

  psychopathy's potential importance over disruptive behavior disorders. *Journal of*

  Abnormal Psychology, 113, 416-427.

Saner, H. & Ellickson, P. (1996). Concurrent risk factors for adolescent violence. *Journal of*

  Adolescent Health, 19, 94-103.

Saskatchewan Corrections and Public Safety (2005). *Programs available for youth who*

  break the law. Regina, Saskatchewan: Author.

Savioe, J. (2000). *Youth violent crime statistics Canada Catalogue. No. 85-002-XPE, Vol. 19,*

  no. 3. Ottawa, ON: Canadian Centre for Justice Statistics.

Schaeffer, C. M., & Borduin, C. M. (2005). Long-term follow-up to a randomized clinical

  trial of multisystemic therapy with serious and violent juvenile offenders. *Journal of*

  Consulting and Clinical Psychology, 73, 445-453.

Schawlbe, C. S. (2007). Risk assessment for juvenile justice: A meta-analysis. *Law and Human Behavior, 31,* 449-462.

Schmidt, F., Hoge, R. D., Gomes, L. (2005). Reliability and Validity Analyses of the Youth Level of Service/Case Management Inventory. *Criminal Justice and Behavior, 32*, 329-344.

Schmidt, F., McKinnon, L., Chattha, H., & Brownlee, K. (2006). Concurrent and predictive validity of the Psychopathy Checklist: Youth Version across gender and ethnicity. *Psychological Assessment, 4,* 393-401.

Schwalbe, C. S; Fraser, M. W., Day, S. H. (2007). Predictive validity of the Joint Risk Matrix with juvenile offenders: A focus on gender and race/ethnicity. *Criminal Justice and Behavior, 34*, 348-361.

Scott, D. (1985). *Risk/needs assessment in juvenile justice: A preliminary evaluation of the youth level of service inventory.* Unpublished honors thesis, Carleton University, Ottawa, Ontario, Canada.

Shahinfar, A., Kupersmidt, J. B., & Matza, L. S. (2001). The relation between exposure to violence and social information processing among incarcerated adolescents. *Journal of Abnormal Psychology, 110,* 136-141.

Shields, I. W., & Simourd, D. J. (1991). Predicting predatory behavior in a population of incarcerated young offenders. *Criminal Justice and Behavior, 48,* 180-194.

Sigvardsson, S., Bohman, M., & Cloninger, C. R. (1987). Structure and stability of childhood personality: Prediction of later social adjustment. *Journal of Child Psychology and Psychiatry, 28,* 929-946.

Silverman, J. R., & Caldwell, R. M. (2008). Peer relationships and violence among female juvenile offenders. *Criminal Justice and Behavior, 35,* 333-343.

Simourd, L. & Andrews, D. A. (1994). Correlates of delinquency: A look at gender differences. *Forum on Corrections Research, 6,* 26-31.

Simourd, D. J., Hoge, R. D, Andrews, D. A., & Leschied, A. W. (1994). An empirically-based typology of male young offenders. *Canadian Journal of Criminology, 36*, 447-461.

Sjöstedt, G. & Grann, M. (2002). Risk assessment: What is being predicted by actuarial prediction instruments? *International Journal of Forensic Mental Health, 2*, 179-183.

Slaby, R.G., & Guerra, N.G. (1988). Cognitive mediators of aggression in adolescent offenders: 1. Assessment. *Developmental Psychology*, *24*, 580-588.

Snyder, H. N., & Sickmund, M. (2006*). Juvenile Offenders and Victims: 2006 National Report*. Washington, D.C.: Office of Juvenile Justice and Delinquency Prevention.

Statistics Canada (1999). Youth violent crime. *Juristat, 19(13),* 1-14.

Statistics Canada (2002). Crime statistics in Canada, 2002*. Juristat, 23(5),* 1-25.

Statistics Canada (2005). Crime statistics in Canada, 2004*. Juristat, 25(5),* 1-23.

Statistics Canada (2006a). Crime statistics in Canada, 2005. *Juristat, 26(4),* 1-23.

Statistics Canada (2006b).Victimization and Offending among the Aboriginal population in Canada*. Juristat, 26 (3),* 1-31.

Statistics Canada (2007). Crime statistics in Canada, 2006*. Juristat, 27(5),* 1-15.

Statistics Canada (2008). Youth Crime in Canada, 2006*. Juristat, 28(3),* 1-16.

Strand, S., Belfrage, H., Fransson, G., & Levander, S. (1999). Clinical and risk management factors in risk prediction of mentally disordered offenders – more important than

historical data? A retrospective study of 40 mentally disordered offenders assessed

with the HCR-20 violence risk assessment scheme. *Legal and Criminological*

Psychology, 4, 67-76.

Stattin, H., & Kerr, K. (2000). Parental monitoring: A reinterpretation. *Child Development,*

71, 1072-1085.

Stattin, H. & Magnusson, D. (1996). Antisocial development: A holistic approach.

Development and Psychopathology, 8, 617-645.

Stoolmiller, M., & Blechman, E. A. (2005). Substance use is a robust predictor of adolescent

recidivism. *Criminal Justice and Behavior, 32,* 302-328.

Stouthamer-Loeber, M. & Loeber, R. (2002). Lost opportunities for intervention: Undetected

markers for the development of serious juvenile delinquency. *Criminal Behavior and*

Mental Health, 12, 69-82.

Strand, S. Belfrage, H., Fransson, G. & Levander, S. (1999). Clinical and risk management

factors in risk prediction of mentally disordered offenders--more important than

historical data? A retrospective study of 40 mentally disordered offenders assessed

with the HCR-20 violence risk assessment scheme. *Legal and Criminological*

Psychology, 4, 67-76.

Tabachnick, B., & Fidell, L. (2001). *Using multivariate statistics* (4th ed.). Needham Heights,

MA., US: Allyn and Bacon.

Tate, D. C., Reppucci, N. D., & Mulvey, E. P. (1995). Violent juvenile delinquents:

Treatment effectiveness and implications for future action. *American Psychologist,*

50, 777-781.

Taylor, P. J., & Gunn, J. (1999). Homicides by people with mental illness: Myth and reality. *The British Journal of Psychiatry, 174,* 9-14.

Thompson, A. P., & Pope, Z. (2005). Assessing juvenile offenders: Preliminary data for the Australian adaptation of the Youth Level of Service/Case Management Inventory (Hoge & Andrews, 1995). *Australian Psychologist, 40,* 207-214.

Thornberry, T. P. (1995). Explaining multiple patterns of offending across the life course and across generations. *Annals of the American Academy of Political and Social Science, 602,* 156-195.

Thornberry, T. P. (1998). Membership in youth gangs and involvement in serious and violent offending. In R. Loeber & D. P. Farrington, David P (Eds.). *Serious and violent juvenile offenders: Risk factors and successful interventions.* (pp. 147-166). Thousand Oaks, CA, US: Sage Publications, Inc.

Teplin, L.A., Abram, K.M., McClelland, G.M., Dulcan, M.K., & Mericle, A.A. (2002). Psychiatric disorders in youth in juvenile detention. *Archives of General Psychiatry, 59,* 1133–1143.

Thornberry, T. P., Krohn, M. D., Lizzotte, A. J., & Chard-Wierschem, D. (1993). The role of juvenile gangs in facilitating delinquent behavior. *Journal of Research in Crime and Delinquency, 30,* 57-87.

Thrasher, F. M. (1963). *The gang: A study of 1,313 gangs in Chicago.* Chicago: University of Chicago Press.

Teichner, G., & Golden, C. J. (2000). The relationship of neuropsychological impairment to conduct disorder in adolescence: A conceptual review. *Aggression and Violent Behavior, 5,* 509-528.

Tierney, D. W., & McCabe, M. P. (2001). The validity of the transtheoretical model of behaviour change to investigate motivation to change among child molesters. *Clinical Psychology and Psychotherapy, 8*, 176–190.

Tinklenberg, J. A., Steiner, H., Huckaby, W. J. & Tinklenberg, R. R. (1996). Criminal recidivism predicted from narratives of violent juvenile delinquents. *Child Psychiatry and Human Development, 27,* 69-79.

Tolan, P. H. (1987). Implications of age of onset for delinquency risk identification. *Journal of Abnormal Child Psychology, 15,* 47-65.

Tolan, P. H., & Gorman-Smith, D. (1998). Development of serious and violent offending careers. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 68-85). Thousand Oaks, CA: Sage.

Tolan, P. H., Guerra, N. G., & Kendall, P. (1995). Developmental-ecological perspective on antisocial behavior in children and adolescents: Towards a unified risk and intervention framework. *Journal of Consulting and Clinical Psychology, 63,* 579-584.

Tolan, P. H., & Loeber, R. (1993). Antisocial behavior. In P.H. Tolan and B. J. Cohler (Eds.) *Handbook of clinical research and practice with adolescents* (pp. 207-331). New York: John Wiley.

Tollett, C. L., & Benda, B. B. (1999). Predicting "survival" in the community among persistent and serious juvenile offenders: A 12-month follow-up study. *Journal of Offender Rehabilitation, 28,* 49-76.

Ulzen, T. P. M., & Hamilton, H. (1998). The nature and characteristics of psychiatric comorbidity in incarcerated adolescents. *Canadian Journal of Psychiatry, 43,* 57-63.

Vaillancourt, T., Brendgen, M., Boivin, M., & Tremblay, R. E. (2003). A longitudinal confirmatory factor analysis of indirect physical aggression: Evidence of two factors over time? *Child Development, 74,* 1628-1638.

Valois, R. F., McKeown, R. E., Garrison, C. Z., & Vincent, M. L. (1995). Correlates of aggressive behaviors among public high school adolescents. *Journal of Adolescent Health, 16,* 26-34.

Van Kammen, W. B., & Loeber, R. (1994). Are fluctuations in delinquent activities related to the onset and offset of juvenile illegal drug use and drug dealing? *Journal of Drug Issues, 24,* 9-24.

Vermeiren, R. (2003). Psychopathology and delinquency in adolescents: A descriptive and developmental perspective. *Clinical Psychology Review, 23,* 277-318.

Vissing, Y. M., Straus, M. A., Gelles, R. J. & Harrop, J. W. (1991). Verbal aggression by parents and psychosocial problems of children. *Child Abuse and Neglect, 15,* 223-238.

Ward, T., & Gannon, T. A. (2006). Rehabilitation, etiology, and self-regulation: The comprehensive good lives model of treatment for sexual offenders. *Aggression and Violent Behavior, 11*, 77-94.

Ward, T., Mann, R. E., & Gannon, T. A. (2007). The good lives model of offender rehabilitation: Clinical implications. *Aggression and Violent Behavior, 12*, 87-107.

Ward, T., Melser, J., & Yates, P. M. (2007). Reconstructing the risk-need-responsivity model: A theoretical elaboration and evaluation. *Aggression and Violent Behavior, 12*, 208-228.

Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). Assessing risk of violence to others. In C. D. Webster and M. A. Jackson (Eds.), *Impulsivity: Theories, assessment, and treatment* (pp. 251-277). New York, NY, US: Guilford Press.

Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). *The HCR-20: Assessing risk for violence (Version 2).* Burnaby, BC: Simon Fraser University.

Webster, C. D., Martin, M. L., Brink, J., Nicholls, T. L., & Middleton, C. (2004). *Manual for the Short-Term Assessment of Risk and Treatability (START), Version 1.0 (consultation ed.).* St. Joseph's Healthcare Hamilton: Ontario, Canada–Forensic Psychiatric Services Commission: Port Coquitlam, British Columbia, Canada.

Welte, J. W., Zhang, L. & Wieczorek, W. F. (2001). The effects of substance use on specific types of criminal offending in young men. *Journal of Research in Crime and Delinquency, 38,* 416-438.

Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood.* New York: Cornell University Press.

White, H. R., Loeber, R., Stouthamer-Loeber, M., & Farrington, D. P. (1999). Developmental associations between substance use and violence. *Development and Psychopathology, 11,* 785-803.

Whitehead, J. T, & Lab, S. P. (1989). A meta-analysis of juvenile correctional treatment. *Journal of Research in Crime and Delinquency, 26*, 276–295.

Widom, C. S. (1989). The cycle of violence. *Science¸244,* 160-166.

Widom, C. S. (1998). Childhood victimization: Early adversity and subsequent psychopathology. In B. P. Dohrenwend (Ed.), *Adversity, stress, and psychopathology* (pp. 81-95). New York: Oxford University Press.

Widom C. S. (2000). Motivation and mechanisms in the "cycle of violence." In D. J. Hansen (Ed.) *Motivation and child maltreatment* (pp. 1-38). Nebraska: University of Nebraska Press.

Williamson, P. Day, A., Howells, K., Bubner, S., & Jauncey, S. (2003). Assessing offender readiness to change problems with anger. *Psychology, Crime & Law, 9*, 295-307.

Wong, S., & Hare, R. D. (2005). *Program Guidelines for the Institutional Treatment of Violent Psychopathic Offenders*. Toronto, ON: Multi-Health Systems.

Wong, S. C. P., & Gordon, A. (2006). The validity and reliability of the Violence Risk Scale: A treatment-friendly violence risk assessment tool. *Psychology, Public Policy, and Law, 12,* 279-309.

Wong, S. C. P., & Gordon, A. (1998 - 2003). *Violence Risk Scale.* (Available from the authors, Department of Psychology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 5A5)

Wong, S. C. P., Gordon, A., & Gu, D. (2007). Assessment and treatment of violence prone forensic clients: An integrated approach. *British Journal of Psychiatry* (suppl. 49), s3-s7.

Wong, S., Gordon, A., Vander Veen, S., & Gu, D. (1999). *The predictive validity of the Violence Risk Scale.* Posted presented at the 60th Annual Canadian Psychological Association Conference, Halifax, NS., Canada.

Wong, S. C. P., Olver, M. E., Nicholaichuk, T., & Gordon, A. (2004 - 2006). *Violence Risk Scale- Sex Offender Version.* (Available from the authors, Department of Psychology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 5A5)

Wong, S. C. P, Van der Veen, S., Leis, T. A; Parrish, H., Gu, D., Usher Liber, E., Middleton, H. L. (2005). Reintegrating seriously violent and personality-disordered offenders from a supermaximum security institution into the general offender population. *International Journal of Offender Therapy and Comparative Criminology, 49*, 362-375.

Wong, S.C. P., Witte, T., Gordon, A., et al. (2006) Can a treatment program designed primarily for violent risk reduction reduce recidivism in psychopaths? *Canadian Psychology, 47*, 211.

Wood, J., Foy, D. W., Goguen, C. A., Pynoos, J., & James, C. B. (2002). Violence exposure and PTSD among delinquent girls. *Journal of Aggression, Maltreatment & Trauma, 6,* 109-126.

World Health Organization (2002). *World report on violence and health: summary.* Geneva, Switzerland: Author.

Worling, J. R., & Curwen, T. (2000). Adolescent sexual offender recidivism: Success of specialized treatment and implications for risk prediction. *Child Abuse & Neglect, 24,* 965-982.

Yexley, M., Borowsky, I., & Ireland, M. (2002). Correlation between different experiences of intrafamilial physical violence and violent adolescent behavior. *Journal of Interpersonal Violence, 17,* 707-720.

Youssef, R. M., Attia, M. S. & Kamel, M. I. (1999). Violence among schoolchildren in Alexandria. *East Mediterranean Health Journal, 5,* 282-298.

Youth Criminal Justice Act c.1 Y-1.5 (2002).

Zamble, E., & Quinsey, V. L. (1997). *The criminal recidivism process.* New York: Cambridge University Press.

Zhang, L., Wieczorek, W. & Welte, J. (1997), The impact of age of onset of substance use on delinquency, *Journal of Research in Crime and Delinquency, 34*, 253–68.

Violence Risk Scale-Youth Version (VRS-YV): Draft Version
(Lewis, Wong, & Gordon, 2004)

Violence Risk Scale: Youth Version Draft

Note: This instrument is currently under development. A section to measure treatment change will be added. This treatment change section will be similar to that in the adult version of the VRS.

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Violence Risk Scale - Youth Version

Static Factors:

<u>S1 Early Onset of Serious Antisocial Behaviours</u>

Objective

To determine the extent to which the youth (prior to age 12) engaged in serious antisocial behaviour that resulted in significant disruption of day-to-day functioning or, had the youth been older, would have resulted in criminal charges. Serious antisocial behaviour includes assaulting or bullying other individuals, stealing, or drug use or distribution.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
Prior to age 12 there are no indications that the youth engaged in any type of antisocial behaviour.

1 Rating
The youth acted out in a few isolated antisocial acts incidents prior to age 12. Problems were not considered serious as evidenced by the fact that they were handled within the family almost without exception.

2 Rating
The youth engaged in antisocial or problematic activities on a number of occasions before age 12. The parents likely required the assistance of some community agencies to assist them in managing their child's behaviours.

3 Rating
Antisocial and problematic behaviours were quite typical occurrences before age 12. The seriousness of the behaviours often warranted the involvement of personnel from agencies such as school, social services, or criminal justice to assist in managing the behaviours. Repeated school transfers not resulting from relocation may also be evident.

Objective

To determine whether, since the age of 12, violent or non-violent criminal behaviours are part of the youth's customary behaviour.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth has not engaged in criminal activity.

1 Rating
The youth has only engaged in a few isolated criminal acts. However, these are atypical incidents. It is unlikely that the youth has had formal contact with the justice system.

2 Rating
The youth has engaged in criminal behaviours on a number of occasions. The youth likely will have been arrested and/or had official contact with the justice system. While criminal activities have occurred repeatedly, they still do not take up a substantial amount of the youth's free time or constitute a pattern of such activities.

3 Rating
Criminal behaviour seems to be a typical part of the youth's functioning. The youth may have multiple arrests and convictions. He or she may spend a substantial portion of their free time engaging in criminal activities.

<u>S3 Instability of Family Upbringing</u>

Objective

To determine the stability of the youth's upbringing.

Note: Family is defined as biological family, extended family, foster care, group home, or a similar childcare arrangement.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth was raised in a fairly stable environment. His or her physical and emotional needs were generally met. There is no evidence to suggest emotional, physical or sexual abuse or neglect. The youth may have been placed in foster care but there was good quality care and supervision.

1 Rating
There is less stability and structure in the individual's upbringing than is described in the 0 Rating but the youth's overall upbringing could be described as fairly stable and adequate.

2 Rating
There was relatively more stability and structure in the youth's upbringing than is described in the 3 Rating but the youth's overall upbringing could be described as unstable and inadequate.

3 Rating
The youth has experienced very little stability to the point of the assessment. Caregivers may have been unwilling or unable to provide proper supervision of the youth. Discipline may have been either nonexistent or harsh and punitive. The individual may have experienced emotional, physical, and/or sexual abuse and neglect. The youth may have spent time in a number of foster homes or with a number of different people (friends, relatives, acquaintances) where there was minimal or nonexistent care and supervision.

S4 Exposure to Antisocial Behaviour in the Family

Objective

To determine whether the youth was raised in a family that encouraged and/or modelled antisocial behaviour.

Note: Family is defined as biological family, extended family, foster care, group home, or a similar childcare arrangement.

Rate Overall Behaviour 0 1 2 3

0 Rating
The youth was raised in a prosocial environment. Family members supported prosocial values and behaviours and were not involved with the criminal justice system.

1 Rating
The youth's family was generally anti-criminal in nature but there have been isolated antisocial activities (including either adjudicated or non-adjudicated criminal activities) by family members. The youth may have been told that it is almost never acceptable to engage in antisocial acts.

2 Rating
Some family members have engaged in repeated antisocial activity and/or make comments indicating that it is acceptable to engage in antisocial activities in some circumstances.

3 Rating
Most, if not all, of the youth's family have engaged in repeated antisocial activities. Both parents and siblings may have criminal records. Family members may model antisocial behaviour for the youth to emulate and may have condoned or actively encouraged the youth to behave in an antisocial manner. The use of violence was accepted, and family members may have interacted with each other and non-family members in an aggressive manner.

Dynamic Factors:

D1 Violent Lifestyle

Objective

To determine the extent that the youth's overall lifestyle, or a particular part of his or her lifestyle, is characterized by violence. For this factor we are not focussing on intensity or escalation of offending.

Note: Violent behaviours are behaviours that can cause serious physical or psychological harm toward people or animals. The definition of violence is not restricted to official convictions for violent crimes. All violent behaviours should be taken into account.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth manages to live in the community without resorting to violence.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth's lifestyle revolves around violence and he or she has shown a long-standing pattern of behaving violently toward others. The onset of violence was likely before the start of elementary school (e.g., cruelty to animals). Violence may be a preferred response for the youth. For example, the use of violence may have been the youth's primary problem-solving strategy. Violence may occur in reaction to provocation (e.g., anger) or to satisfy specific needs (e.g., to obtain money, "respect"). The youth is likely to seek out violence and physically injures his or her victims. The youth may choose to belong to a gang. The youth's violent behaviour may not be noticeable in all settings. For example, the youth behaves in a prosocial manner at school but is physically violent at home or vice versa.

<u>D2 Callous and Unemotional</u>

Objective

To determine whether the youth appears to be callous and unemotional in his or her interactions with others.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth has very few or none of the characteristics described in the 3 Rating below.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
A rating of 3 should be given to those whose *overall* personality profile is consistent with the following characteristics. The youth's personality style includes a number of clearly identifiable traits. The youth appears to be unconcerned about the feelings of others. Issues such as a failure to express or experience remorse for wrongdoing, a lack of concern about the reactions of family members to his or her antisocial activities, and/or a tendency to manipulate others for personal gain may be apparent. The youth does not seem to experience strong feelings but may give the impression of "play-acting" his or her emotions. Although the youth may be described as superficially charming, he or she may present as egocentric and grandiose.

The youth may have received a diagnosis or have been described as conducted disordered. *However, simply having a previous diagnosis of Conduct Disorder is not sufficient for a 3 Rating. Rate the item based on the extent to which the individual's overall characteristics match the characteristics described in the 3 Rating.*

D3 Criminal Attitudes

Objective

To determine if the youth has criminal attitudes that facilitate the use of violence.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
Overall, the youth believes in the importance of behaving in a prosocial way. The youth abides by the law, respects the rights of others, and shows a positive response to authority. The youth wants to follow the rules of society. The youth seeks socially acceptable ways to deal with authorities and the rules of society, even if they may appear to be in conflict with his or her views. Alternatively, the youth may espouse criminal attitudes but they are completely unrelated to violent behaviour (e.g., he or she believes that it is acceptable to steal inexpensive items from stores).

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating

The youth does not believe in the importance of prosocial behaviours and rules and views these as boring or alien. Instead, he or she holds attitudes that are favourable toward crime in general and violence in particular. These include anti-authority views, dishonesty, hostility toward police, and viewing violence as a legitimate problem-solving strategy. These attitudes are pervasive and are usually observable in multiple settings (e.g., home, school).

<u>D4 Negative Attitude toward Education</u>

Objective

To determine the extent to which the individual values obtaining an education and is committed to school.

Note: If the youth is no longer attending school but is working, the rater can substitute work behaviour to rate this factor.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth attends school regularly and is interested in doing well. Grades are not necessarily a reflection of commitment to school. A rating of 0 is still given if the youth attends school and is willing to complete schoolwork but does not receive high grades. If the youth has been institutionalized for a considerable length of time, consistent participation in institutional programming and/or educational upgrading is indicative of a commitment to schooling.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth lacks commitment to school. This is manifested in such things as truancy, quitting school, not completing assignments, not wanting to attend school, and viewing education as unimportant. The youth's failure at school is a result of a poor attitude and lack of effort rather than from intellectual challenges. These problems may have been evident from an early age. As a result of these problems, the youth may have difficulty in maintaining passing grades and may be enrolled in modified or special academic programs. The youth may hold the attitude that he or she does not need to receive an education in order to support him- or herself as an adult.

<u>D5 Antisocial Peers</u>

Objective

To determine whether the youth's association with antisocial peers is related to violence.

Note: Peers include peer-aged family members, friends, and acquaintances that the youth associates with in his or her daily life.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth has few, if any, peers who are involved in antisocial activities. There are no indications that the youth is involved in gang-related or group violence. The youth spends his or her leisure time involved with prosocial peers. If there are antisocial peers, their influence on the youth is completely unrelated to the commission of violent acts.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth primarily associates with antisocial individuals, and his or her violence is regularly associated with these negative peers. Antisocial peers influence the youth's violent behaviour either directly or indirectly. For example, much of the youth's leisure time may be spent in the company of these peers, and their time together may revolve around activities that often lead to violence. Membership in a gang warrants the rating of a 3. During institutionalization the youth may choose to associate with violent individuals or those who wield a great deal of negative influence within the institutional population.

Objective

To determine whether the individual uses aggressive behaviours extensively or consistently in interpersonal interactions.

Note: Aggression directed toward objects (e.g., punching walls, breaking things) is considered to be equivalent to interpersonal aggression if it appears to be done for the purpose of intimidation, manipulation, or as a show-off to others.

Rate Overall Behaviour   **0**   **1**   **2**   **3**

0 Rating
The youth does not use aggressive behaviours habitually or extensively in interpersonal interactions.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating

The youth's interactions with others typically involve some type of aggressive behaviour, and this may have been present since early childhood. Aggressive behaviours include verbal aggression (e.g., shouting), physical aggression (e.g., hitting, threatening gestures), and passive-aggressiveness (e.g., withdrawal, pouting). These types of behaviours are a major and consistent component of the youth's interaction style.

D7 Poor Emotional Control

Objective

To determine whether the youth's tendency to overcontrol or undercontrol emotions has resulted in violence.

Note: Being overcontrolled refers to bottling emotions up over the long term until the youth is unable to contain feelings and experiences an outburst. Being undercontrolled refers to an inability to regulate emotions during the short term. This youth may be described as having a short temper or being irritated easily.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth is able to express his or her feelings in a healthy, pro-social way. There is no history of emotional outbursts being related to violence.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth's inability to control emotional reactions is often associated with violence that may or may not lead to formal sanctions. There is evidence of emotional outbursts, explosive rages, serious depressive episodes, or stuffing of feelings that culminated in violence.

<u>D8 Violence During Institutionalization</u>

Objective

To determine whether the youth regularly behaves violently while institutionalized.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
There is no history of the youth being violent during periods of institutionalization. Any negative behaviour committed is non-violent in nature (e.g., not keeping their room tidy) or is a minor institutional offence (e.g., disruptiveness).

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth is likely to have a record of physical violence (e.g., fighting, intimidation) and/or verbal violence (e.g., threats) against peers and staff while institutionalized. These incidents may or may not have resulted in official charges. Many instances of suspicion of involvement in violence are considered to be equivalent to the presence of violence.

<u>D9 Weapon Use</u>

Objective

To determine whether the youth's violent behaviour is related to the possession and use of weapons.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
There is no evidence that the youth has used a weapon, defined as any object excluding body parts, to cause physical and/or psychological harm to others.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth often uses weapons to cause physical or psychological harm to others. The youth may routinely carry (although may not use) weapons during the commission of crimes or as part of everyday life.

<u>D10 Lack of Insight into Cause of Violence</u>

Objective

To determine the youth's understanding of what caused him or her to engage in past violence.

Note: Individuals are judged on the basis of how well they understand their cause of violence within the limitations of their intellectual abilities.

Rate Overall Behaviour　　　　　　　　**0　　1　　2　　3**

0 Rating
The youth is willing to discuss past instances of violent behaviour. The youth takes full responsibility for past violent actions, and is able to identify the factor(s) that produced and maintained violence. The youth does not attempt to externalize blame or justify his or her offending behaviours. The youth understands the difference between high- and low-risk situations regarding violence.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth does not understand the conditions that result in violent behaviour. The youth does not take responsibility for past violence, may blame others or the system for his or her violent actions, avoids discussing details of the offence(s), and/or refuses to address violent behaviours through recommended treatment interventions. A Rating of 3 is given if the youth claims to have no memory of the offence and declines to use other relevant life situations to understand the precipitants of violence. The youth is unable to differentiate low-risk situations from high-risk situations.

<u>D11 Mental Disorder</u>

Objective

To determine if the youth's mental disorder is associated with violence

Note: For the purpose of rating this factor, mental disorder is defined as any psychiatric disorder that is formally diagnosed (DSM-IV or equivalent) by a psychiatrist or a psychologist. If there is an indication of mental disorder but no diagnosis is available, omit this item and note the observation for future investigation.

Since the equivalent of Conduct Disorder, ADHD, and Substance Use Disorder are assessed elsewhere in this scale, they are not included in the rating of this factor.

Rate Overall Behaviour   **0**   **1**   **2**   **3**

0 Rating
There is no indication of the presence of a mental disorder or, if there is evidence of a mental disorder, it is not associated with violent behaviour. A 0 rating is given if the mental disorder is only associated with non-violent antisocial or criminal activities.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating

There is a strong association between the youth's mental disorder and his or her violent behaviour. For example, a youth who is experiencing auditory command hallucinations to harm others, and did in fact harm others, should be rated 3. If as a result of a mental disorder, the youth's ability to cope with daily living is compromised to the point that violence occurs quite consistently, a rating of 3 is given. If a failure to comply with prescribed medications is associated with violence and the youth is characteristically noncompliant, a rating of 3 is given.

<u>D12 Substance Abuse</u>

Objective

To determine the extent to which substance abuse is linked to violence for the youth.

Note: Drug is defined as any substance that is used for mind-altering purposes.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth does not have a substance abuse or substance related problem. He or she may drink socially or experiment with drugs. However, substance use has not been linked to violent behaviour for the individual (e.g., substance use causes youth to become mellow and calm). Evidence that the youth engages in selling drugs does not automatically result in a high score for this factor; if the selling of drugs is not associated with violence a rating of 0 is given.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
A substance abuse or substance related problem has been clearly linked to violence for the youth. The youth is prone to committing violent acts while under the influence of drugs and/or alcohol. The violent behaviour may occur during or shortly after substance use. While intoxicated the youth may show significant behavioural changes that often lead to violence (e.g., becomes obnoxious and pushes others around). A rating of 3 is given if violence is associated consistently with the selling of drugs.

<u>D13 Impulsivity/Attention Deficits</u>

Objective

To determine if the youth *typically* reacts impulsively to situations or provocations in his or her overall behaviour.

Note: Impulsivity is the tendency to do or say things on the spur of the moment or to act without thinking.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth does not usually respond impulsively. The youth has an ability to restrain him- or herself from activity that places him or her at risk for violent acting-out and generally considers the consequences associated with his or her actions before responding.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth tends to be hyperactive and restless, has concentration or attention problems, and/or engages in risk taking. The youth has a high activity level and may be described by others as a sensation seeker or is known as someone who does things on a dare (e.g., shouting insults at others to cause fights). The youth may react quickly to provocation; for example, he or she may fight a larger opponent or multiple opponents even when other options are available. The impulsivity does not have to be linked solely to criminal behaviour. A formal diagnosis of ADHD may have been made, and the youth may have been prescribed medication (e.g., Ritalin, Cylert).

<u>D14 Cognitive Distortions</u>

Objective

To determine whether the individual uses cognitive distortions to justify or rationalize his or her violent behaviours.

Note: Cognitive distortions are distorted thinking, reasoning, attitudes, and beliefs etc. that an individual uses in an attempt to justify or legitimize wrongful behaviour. A perceptual or cognitive distortion that is caused by a mental illness is not considered to be a cognitive distortion for the purpose of rating this item.

Rate Overall Behaviour   0   1   2   3

0 Rating
The individual does not use cognitive distortions. The youth does not minimize or downplay the severity of his or her actions, or try to justify, excuse, or rationalize offending behaviours linked to violence. The youth tends to consider alternative perspectives rationally and objectively. If distorted thinking is present, it is not associated with violent behaviour.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth demonstrates distorted thinking processes that produce inaccurate perceptions and interpretations of events that lead to violence. For example, the youth may believe that violent behaviour is always justifiable or that it is necessary for self-esteem. The youth may interpret ambiguous information as indicators of threat or may selectively attend to violence-related information no matter how insignificant or tangential this information is to the situation. The youth is likely to be reluctant to consider information that may contradict his or her violence-prone view of the world. The cognitive distortions may include excuses, justifications or rationalizations, blaming and minimization of the seriousness of the offence.

<u>D15 Poor Parent-Child Interaction</u>

Objective

To determine whether the ongoing interaction style between the youth and his or her parents/guardians is poor (e.g., non-supportive).

Rate Overall Behaviour   **0   1   2   3**

0 Rating
There is good evidence of a positive relationship between parents or parental figures and the youth. There is consistent and appropriate supervision and discipline, and there is no evidence of abuse or neglect. The youth and parental figures spend time together engaged in enjoyable activities and sharing feelings and ideas. Communications between the youth and parental figures are frank and open.   The relationship is one of mutual respect and support. The youth appears to be strongly and positively connected to family members and other caretakers.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
Family members' interactions involve a high degree of strain and conflict. There may be a low degree of emotional closeness between the youth and family members. In extreme cases, this may lead to neglect and abuse by the parents. Supervision and discipline are either nonexistent or extremely harsh and punitive. Family communication may degenerate into aggressive verbal or physical exchanges. The youth may not have strong connections to family members and may be openly disrespectful. The youth may perceive care takers as unsupportive. In extreme cases youths may choose to isolate themselves rather than interact with caretakers.

<u>D16 Family Stress</u>

Objective

To determine whether there is a high level of stress within the youth's home environment, excluding those stressors that are unique to the parent–child relationship as described in factor D15.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth's home environment is generally quite stable. Family stress is dealt with quickly and positively.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth's home environment is very unstable and the youth has experienced multiple changes.   There is a constant high level of stress that may result from a number of sources (e.g., presence of many siblings, living in a single-parent home, repeated moves, financial strain). The youth may be exposed to severe conflict between parents as well as other family members.

<u>D17 Social Isolation</u>

Objective

To determine whether the youth's level of connection to his or her social environment is related to engaging in violence.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth is connected to his or her social environment. He or she may have a number of extra-curricular activities such as belonging to clubs or teams or has positive friendships. The youth should still be given a 0 rating if he or she chooses pro-social or positive solitary activities.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth is not connected to his or her immediate social environment. The term "loner" may be used to describe the youth. The youth does not engage in socially acceptable extracurricular activities (e.g., sports teams, clubs). Isolation may be the cause of or in reaction to his or her violence. For example, the youth's violence has led peers to ostracize him or her. On the other hand, the youth may engage in violence as a result of social isolation (e.g., the youth bullies younger children due to lack of age-appropriate social contact).

<u>D18 Community Disorganization</u>

Objective

To determine whether the community in which the youth lives is disorganized.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
The youth resides in a neighbourhood that is generally organized in nature. For example, there are no significant activities that de-stabilize the community such as extensive drug dealing, prostitution, crime, gang domination, extreme poverty, etc.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth resides in a neighbourhood that has no cohesion; for example, neighbours are estranged from one another and there are destabilizing forces as indicated in the 0 rating.

<u>D19 Poor Compliance</u>

Objective

To determine whether the youth is willing to comply with the requirements of community supervision.

Rate Overall Behaviour   **0   1   2   3**

0 Rating
There is consistent and genuine willingness to comply with community supervision. The youth keeps appointments with his or her probation worker and abides by the conditions of his or her probation order. Supervision may be viewed by the youth as a resource and support rather than as an inconvenience or unnecessary intrusion.

If the youth has never been released under supervision, compliance can be assessed by his or her willingness to work with institutional staff who assist in the youth's release planning. Willingness could be demonstrated by the youth taking initiative and exerting effort in formulating and/or developing appropriate release planning.

1 Rating
Less positive than 0.

2 Rating
Less serious than 3.

3 Rating
The youth consistently rejects and/or fails to comply with the rules and expectations of correctional and mental health services. Poor compliance may be evident by failure to follow institutional rules, probation orders, and treatment interventions and these violations may be violent in nature (e.g., threatening the probation worker, engaging in violent crime). The youth may demonstrate no awareness of the need to work with community, correctional, and/or mental health workers in order to reduce his or her risk for future problems.

APPENDIX B
Violence Risk Scale-Youth Version (Lewis, Wong, & Gordon, 2004) Score Sheet

VRS-YV static and dynamic factors are rated on a four point scale (i.e., 0, 1, 2, or 3) to reflect the extent of the problems identified by the factors. In general, the higher the rating, the more the factor is associated with violence in the individual's lifetime functioning. A 0-rating indicates the factor in question has no relationship with violence, and a 3-rating indicates that there is a consistent and significant relationship with violence. A rating of 1 is considered less positive than 0, and a rating of 2 is considered less serious or negative than 3. If it is necessary to omit a factor, the rater should indicate whether the omission is due to insufficient information (I) or because the item is not applicable (N). SC refers to stages of change rating.

Static Factors   **I/N**

S1	Early Onset of Serious Antisocial Behaviors	**0**	**1**	**2**	**3**	___
S2	Criminality	**0**	**1**	**2**	**3**	___
S3	Instability of Family Upbringing	**0**	**1**	**2**	**3**	___
S4	Exposure to Antisocial Behavior in the Family	**0**	**1**	**2**	**3**	___

SC

Dynamic Factors   **Pre Post**

D1	Violent Lifestyle	**0**	**1**	**2**	**3**	___	___	___
D2	Callous and Unemotional	**0**	**1**	**2**	**3**	___	___	___
D3	Criminal Attitudes	**0**	**1**	**2**	**3**	___	___	___
D4	Negative Attitude toward Education	**0**	**1**	**2**	**3**	___	___	___
D5	Antisocial Peers	**0**	**1**	**2**	**3**	___	___	___
D6	Interpersonal Aggression	**0**	**1**	**2**	**3**	___	___	___
D7	Poor Emotional Control	**0**	**1**	**2**	**3**	___	___	___
D8	Violence during Institutionalization	**0**	**1**	**2**	**3**	___	___	___
D9	Weapon Use	**0**	**1**	**2**	**3**	___	___	___
D10	Lack of Insight into Cause of Violence	**0**	**1**	**2**	**3**	___	___	___
D11	Mental Disorder	**0**	**1**	**2**	**3**	___	___	___
D12	Substance Abuse	**0**	**1**	**2**	**3**	___	___	___
D13	Impulsivity/Attention Deficits	**0**	**1**	**2**	**3**	___	___	___
D14	Cognitive Distortions	**0**	**1**	**2**	**3**	___	___	___
D15	Poor Parent-Child Interaction	**0**	**1**	**2**	**3**	___	___	___
D16	Family Stress	**0**	**1**	**2**	**3**	___	___	___
D17	Social Isolation	**0**	**1**	**2**	**3**	___	___	___
D18	Community Disorganization	**0**	**1**	**2**	**3**	___	___	___
D19	Poor Compliance	**0**	**1**	**2**	**3**	___	___	___

Psychopathy Checklist-Youth Version (Forth, Kosson, & Hare, 2003) Response Sheet

Each of the following PCL-YV items is rated on a 3-point ordinal scale (2, 1, or 0) based on the degree to which the personality and behavior of the adolescent matches the item description given in the scoring manual. Scores of 2, 1, and 0 are defines as follows:

2   The item applies to the youth; a reasonably good match in most essential respects; his/her behavior is generally consistent with the flavor and intent of the item.

1   The item applies to a certain extent but not to the degree required for a score of 2; a match in some respects but with too many exceptions or doubts to warrant a score of 2; uncertain about whether or not the item applies; conflicts between interview and file information that cannot be resolves in favor of a score of 2 or 0.

0   The item does not apply to the youth; he/she does not exhibit the trait or behavior in question, or he/she exhibits characteristics that are opposite of, or inconsistent with, the intent of the item.

1.	Impression management	**0**	**1**	**2**	**X**
2.	Grandiose sense of self worth	**0**	**1**	**2**	**X**
3.	Stimulation seeking	**0**	**1**	**2**	**X**
4.	Pathological lying	**0**	**1**	**2**	**X**
5.	Manipulation for personal gain	**0**	**1**	**2**	**X**
6.	Lack of remorse	**0**	**1**	**2**	**X**
7.	Shallow affect	**0**	**1**	**2**	**X**
8.	Callous/lack of empathy	**0**	**1**	**2**	**X**
9.	Parasitic orientation	**0**	**1**	**2**	**X**
10.	Poor anger control	**0**	**1**	**2**	**X**
11.	Impersonal sexual behavior	**0**	**1**	**2**	**X**
12.	Early behavior problems	**0**	**1**	**2**	**X**
13.	Lacks goals	**0**	**1**	**2**	**X**
14.	Impulsivity	**0**	**1**	**2**	**X**
15.	Irresponsibility	**0**	**1**	**2**	**X**
16.	Failure to accept responsibility	**0**	**1**	**2**	**X**
17.	Unstable interpersonal relationships	**0**	**1**	**2**	**X**
18.	Serious criminal behavior	**0**	**1**	**2**	**X**
19.	Serious violations of conditional release	**0**	**1**	**2**	**X**
20.	Criminal versatility	**0**	**1**	**2**	**X**

APPENDIX D
Youth Level of Service/Case Management Inventory (Hoge & Andrews, 2003) Part 1

Within each subscale, use an "**x**" to mark all items that apply to the juvenile being assessed. Items are explained in Appendix A of the YLS/CMI User's Manual.

1. Prior and Current Offenses/Dispositions

a. Three or more prior convictions ☐
b. Two or more failures to comply ☐
c. Prior custody ☐
a. Three or more current convictions ☐

2. Family Circumstances/Parenting

a. Inadequate supervision ☐
b. Difficulty in controlling behavior ☐
c. Inappropriate discipline ☐
d. Inconsistent parenting ☐
e. Poor-relations (father-youth) ☐
f. Poor-relations (mother-youth) ☐

3. Education/Employment

a. Disruptive classroom behavior ☐
b. Disruptive behavior on school property ☐
c. Low achievement ☐
d. Problems with peers ☐
e. Problems with teachers ☐
f. Truancy ☐
g. Unemployed/not seeking employment ☐

4. Peer Relations

a. Some delinquent acquaintances ☐
b. Some delinquent friends ☐
c. No/few positive acquaintances ☐
d. No/few positive friends ☐

5. Substance Abuse

a. Occasional drug use ☐
b. Chronic drug use ☐
c. Chronic alcohol use ☐
d. Substance use interferes with life ☐
e. Substance use linked to offenses ☐

6. Leisure/Recreation

a. Limited organizational activities ☐
b. Could make better use of time ☐
c. No personal interests ☐

7. Personality/Behavior

a.   Inflated self-esteem   ☐
b.   Physically aggressive   ☐
c.   Tantrums   ☐
d.   Short attention span   ☐
e.   Poor frustration tolerance   ☐
f.   Inadequate guilt feelings   ☐
g.   Verbally aggressive, impudent   ☐

8.   Attitudes/Orientation
a.   Antisocial/procriminal attitudes   ☐
b.   Not seeking help   ☐
c.   Actively rejecting help   ☐
d.   Defies authority   ☐
e.   Callous, little concern for others   ☐

APPENDIX E
VRS-YV Project Data Collection Protocol

Subject identification #:

Demographic and Background Information

Date of Birth (dd/mm/yyyy): _____

Sex (M/F):

Education (years): _____

Attending school at time of arrest? (Y/N)

Ever suspended/expelled? (Y/N)

Employment Record:
1) Never employed
2) Frequently unemployed (sporadic short-term jobs and long periods of unemployment)
3) Never employed 1 full year
4) Fulltime employment minimum 2 years

Employed at time of arrest? (Y/N)

Current living situation:
1) Natural birth parents
2) Single parent household
3) Other relatives (e.g., grandparents)
4) Foster care
5) Add as needed

Ethnicity:
1) Caucasian
2) Aboriginal
3) Add as required

Sentencing Information
List current convictions (index sentence): _____

_____

_____

_____

Index Sentencing Date (dd/mm/yyyy) (if multiple dates, code the earliest date): _____

Index Sentence Length: _____

Sentence Type:
1) Closed/secure custody
2) Open custody
3) Probation

Ever served a period of custody? (Y/N) (if so, was it Closed/Open?)

Total number of index convictions: _____

Index offense type (circle all that apply):
1) Nonviolent nonsexual
2) Violent nonsexual
3) Sexual (contact offense)
4) Non-contact Sexual

Criminal History

*Count convictions occurring *prior* to the Index Sentence only

Date of first conviction (dd/mm/yyyy) _____

Date of first violent (nonsexual) conviction (dd/mm/yyyy) _____

Date of first sexual (any) conviction (dd/mm/yyyy) _____

Any prior non-adjudicated sex offenses? (Y/N) If so, approximate date or age of youth (dd/mm/yyyy): _____

Previous Convictions
Any previous convictions? (Y/N)
Any previous violent (nonsexual conviction(s)? (Y/N)

Total previous violent (nonsexual) convictions: _____

Total previous nonviolent (nonsexual) convictions: _____

Total previous nonsexual convictions: _____

Any previous sexual conviction(s)? (Y/N)
Total previous sexual convictions: _____
Sum all previous convictions (non-violent + violent + sexual) = _____
Total previous sentencing occasions: _____

Criminal Information Pertaining to Previous and Current Offenses

History of Escapes/Breaches
Any prior breaches? (Y/N)
Total prior breaches: _____
Any attempted/completed escape from a youth justice facility? (Y/N)

Services Received
Any DSM diagnosis (Y/N) on file?
If so, please list all DSM diagnoses: _____

_____

_____

***Services Received at Child and Youth Services, Young Offender Program* (circle all that apply)**
1) Psychological assessment
2) Individual treatment
3) Group treatment

Assessment Services
Intelligence Testing (Y/N):

Test(s) administered (please specify if WAIS, WISC, WASI, K-ABC) _____

_____

Overall standard score(s): _____

Personality/Psychopathology Testing (Y/N):

Test(s) administered (please specify if Jesness, MMPI-A, Adolescent Psychopathology Scale,

Interpersonal Behavior Survey, BPI, or specific aggression measure):_____

_____

_____

Psychoeducational Testing (Y/N):
Test(s) administered (please specify if WRAT, WIAT, Woodckck-Johnson) _____

_____

Reading achievement standard score + approximate grade level: _____

Arithmetic achievement standard score + approximate grade level: _____

Writing achievement standard score + approximate grade level: _____

Overall standard score (if available) + approximate grade level: _____

Current (actual) grade level? _____

Received a court ordered assessment (order for examination)? (Y/N)
Estimation of appraised level of risk for recidivism mentioned in report? (Y/N)
If so, level of risk appraised in report (e.g., medium or moderate, etc.): _____

Individual Treatment Services
Received individual therapy? (Y/N)
Approximate number of sessions attended: _____

Group Treatment
Please list any groups attended (not necessarily completed) at CYS: _____

_____

_____

_____

*Please complete the following information for every group the youth has attended (continue
on reverse if needed):
Group name: _____

Specialized group? Y/N (please specify, e.g., sex offender, violent offender) _____

_____

Group start date (first session) (dd/mm/yyyy) _____

Group finishing date (last session) (dd/mm/yyyy) _____

Approximate number of sessions attended: _____

Successfully completed (as evaluated by group leader)? (Y/N)

Recidivism Information

*Please use official criminal record for coding these offenses

Date of release (dd/mm/yyyy) (if the youth has received a period of probation, this would be
the (most recent) index sentencing date): _____

Date of first conviction (dd/mm/yyyy): _____

Date of first violent (nonsexual) conviction (dd/mm/yyyy): _____

Date of first sexual conviction (dd/mm/yyyy): _____

Total new nonviolent nonsexual convictions: _____

Total new violent nonsexual convictions: _____

Total new nonsexual convictions: _____

Total new sexual convictions: _____

Total new convictions (nonviolent + violent + sexual): _____

Total serious convictions (violent + sexual) = _____

Any arrests or charges that did not result in conviction or sentencing? (Y/N)
Please specify type and number:

Nonviolent (nonsexual): _____

Violent (nonsexual): _____

Sexual: _____

Any custody placement upon sentencing? (Y/N)
If so, length of (first) custody placement: _____

Type of sentencing for first conviction (in the case of multiple placements, please circle the most restrictive one received):
1) Closed/Secure
2) Open
3) Probation

APPENDIX F
Supplementary Tables for Study 2

Table 2.3

Correlations between VRS-YV dynamic items and YLS/CMI criminogenic domains

VRS-YV variable	YLS/CMI criminogenic domain							
	O/D	F/P	E/E	PR	SU	L/R	P/B	A/O
D1 Violent lifestyle	.54**	.36**	.45**	.51**	.38**	.36**	.42**	.36**
D2 Callous/unemotional	.29**	.17*	.32**	.33**	.10	.12	.39**	.55**
D3 Criminal attitudes	.43**	.27**	.51**	.60**	.43**	.37**	.45**	.54**
D4 Negative attitude education	.34**	.10	.55**	.50**	.24**	.35**	.29**	.32**
D5 Antisocial peers	.47**	.24**	.39**	.68**	.59**	.29**	.15	.29**
D6 Interpersonal aggression	.31**	.34**	.39**	.38**	.22**	.27**	.58**	.42**
D7 Poor emotional control	.12	.20*	.39**	.34**	.26**	.22**	.42**	.12
D8 Institutional violence	.48**	.28**	.35**	.39**	.22*	.27**	.46**	.45**
D9 Weapon use	.34**	.14	.20*	.39**	.29**	.25**	.19*	.21*
D10 Insight	.09	.17	.24**	.12	-.07	.13	.41**	.40**
D11 Mental disorder	.08	.01	.02	-.04	.07	.15	.19*	-.09
D12 Substance abuse	.51**	.18*	.22**	.49**	.82**	.27**	.14	.22*
D13 Impulsivity/attention deficits	.30**	.19*	.33**	.30**	.30**	.26**	.53**	.18*
D14 Cognitive distortions	.33**	.21*	.35**	.46**	.18	.27**	.52**	.63**
D15 Poor parent/child interaction	.12	.59**	.13	.21*	.06	.10	.32**	.25**
D16 Family stress	.07	.44**	.18*	.20*	.12	.22*	.20**	.10
D17 Social isolation	.26**	.18	.39**	.24**	.02	.40**	.37**	.14
D18 Community disorganization	.51**	.54**	.46**	.51**	.46**	.53**	.24**	.22
D19 Poor compliance	.60**	.30**	.51**	.52**	.42**	.48**	.45**	.48**

Note: * *p* < .05, ** *p* < .01. YLS/CMI = Youth Level of Services/Case Management Inventory. O/D = Prior and current offenses/dispositions, F/P = Family circumstances/parenting, E/E = Education/employment, PR = Peer relations, SU = Substance abuse, L/R = Leisure/recreation, P/B = Personality/behavior, A/O = Attitudes/orientation

Table 2.5

Correlations between VRS-YV dynamic items and PCL-YV factors

VRS-YV variable	PCL-YV factor			
	1	2	3	4
D1 Violent lifestyle	.32**	.46**	.63**	.75**
D2 Callous/unemotional	.59**	.78**	.37**	.41**
D3 Criminal attitudes	.29**	.53**	.65**	.65**
D4 Negative attitude education	.09	.35**	.56**	.46**
D5 Antisocial peers	.24**	.28**	.55**	.50**
D6 Interpersonal aggression	.32**	.48**	.51**	.55**
D7 Poor emotional control	-.05	.13	.35**	.43**
D8 Institutional violence	.51**	.49**	.41**	.56**
D9 Weapon use	.18*	.34**	.41**	.48**
D10 Insight	.23**	.50**	.29**	.31**
D11 Mental disorder	-.13	-.05	.14	.12
D12 Substance abuse	.02	.20*	.56**	.48**
D13 Impulsivity/attention deficits	.01	.16	.48**	.46**
D14 Cognitive distortions	.46**	.70**	.47**	.49*
D15 Poor parent/child interaction	.03	.09	.12	.11
D16 Family stress	-.05	-.10	.20*	.09
D17 Social isolation	.18*	.27**	.33**	.38**
D18 Community disorganization	.28*	.25*	.43**	.46**
D19 Poor compliance	.33**	.43**	.67**	.63**

Note: * $p < .05$, ** $p < .01$. PCL-YV = Psychopathy Checklist-Youth Version, Factor 1 = Interpersonal, Factor 2 = Emotional, Factor 3 = Behavioral, Factor 4 = Criminality

Table 2.6

Comparisons on forensic youth measures between male (n = 68) and female (n = 65) youth

Measure	Male	Female M (SD)	Total	F	Cohen's d
VRS-YV					
Static	8.3 (2.7)	8.1 (2.5)	8.2 (2.6)	0.06	.04
Dynamic	35.3 (11.2)	36.3 (8.6)	35.9 (9.9)	0.27	.09
Total	43.6 (13.4)	44.3 (10.3)	44.0 (12.0)	0.14	.07
F1 Interpersonal violence	25.4 (8.3)	24.6 (6.2)	25.0 (7.3)	0.39	.11
F2 Delinquency	9.7 (4.3)	10.3 (3.3)	10.0 (3.9)	0.66	.14
F3 Family problems	7.8 (2.8)	8.9 (2.9)	8.3 (2.9)	4.35*	.37
PCL-YV					
F1 Interpersonal	2.5 (2.1)	1.8 (1.7)	2.1 (2.0)	3.66	.33
F2 Emotional	4.7 (2.3)	4.2 (2.0)	4.5 (2.2)	1.40	.21
F3 Behavioral	6.6 (2.7)	7.0 (1.9)	6.8 (2.3)	1.30	.20
F4 Criminality	6.5 (2.8)	5.9 (2.3)	6.2 (2.6)	1.68	.23
Total	22.4 (8.7)	21.4 (6.3)	21.9 (7.6)	0.52	.13
YLS/CMI					
Offenses/dispositions	2.5 (2.0)	2.4 (1.7)	2.4 (1.8)	0.10	.06
Family/parenting	3.4 (1.6)	3.8 (1.7)	3.6 (1.7)	2.54	.28
Employment/education	3.9 (2.0)	3.8 (1.8)	3.9 (1.9)	0.00	.00
Peer relations	2.9 (1.2)	3.3 (1.1)	3.1 (1.2)	3.16	.31
Substance abuse	3.2 (1.8)	3.9 (1.1)	3.6 (1.5)	6.52*	.45
Leisure/recreation	1.9 (0.9)	2.2 (0.6)	2.0 (0.8)	4.04*	.35
Personality/behavior	4.1 (1.6)	4.3 (1.2)	4.2 (1.4)	0.71	.15
Attitudes/orientation	2.9 (1.4)	2.7 (1.3)	2.8 (1.3)	1.01	.17
Total	24.9 (8.8)	26.3 (6.1)	25.5 (7.7)	1.20	.19

Note: * $p < .05$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Table 2.7

Comparisons on forensic youth measures between Aboriginal (n = 84) and non-Aboriginal

(n = 32) youth

Measure	Aboriginal	Non-Aboriginal	Total	F	Cohen's d
		M (SD)			
VRS-YV					
Static	9.0 (2.4)	6.7 (2.4)	8.4 (2.6)	21.52*	.87
Dynamic	39.6 (8.2)	28.8 (10.5)	36.6 (10.1)	33.81*	1.09
Total	48.6 (9.8)	35.8 (11.9)	44.8 (12.1)	40.59*	1.19
F1 Interpersonal violence	27.2 (6.5)	20.9 (7.4)	25.5 (7.3)	20.37*	.84
F2 Delinquency	11.5 (3.0)	6.7 (3.9)	10.2 (3.9)	51.24*	1.34
F3 Family problems	8.8 (2.8)	7.4 (2.9)	8.4 (2.9)	5.46	.44
PCL-YV					
F1 Interpersonal	2.1 (2.0)	2.3 (2.0)	2.2 (2.0)	0.12	.06
F2 Emotional	4.8 (2.0)	3.9 (2.3)	4.5 (2.1)	3.74	.36
F3 Behavioral	7.7 (1.8)	5.2 (2.6)	7.0 (2.3)	32.88*	1.07
F4 Criminality	7.0 (2.4)	4.6 (2.3)	6.4 (2.6)	22.52*	.89
Total	24.0 (6.5)	18.0 (8.3)	22.3 (7.5)	16.51*	.76
YLS/CMI					
Offenses/dispositions	3.0 (1.7)	1.3 (1.6)	2.5 (1.8)	24.92*	.93
Family/parenting	3.8 (1.7)	3.2 (1.6)	3.6 (1.7)	3.01	.32
Employment/education	4.3 (1.8)	3.0 (2.1)	3.9 (1.9)	10.79*	.61
Peer relations	3.4 (0.9)	2.5 (1.4)	3.2 (1.1)	18.78*	.81
Substance abuse	4.2 (1.0)	2.3 (1.6)	3.7 (1.5)	53.57*	1.37
Leisure/recreation	2.2 (0.6)	1.7 (1.0)	2.1 (0.8)	13.41*	.69
Personality/behavior	4.5 (1.2)	3.7 (1.8)	4.3 (1.4)	6.95	.49
Attitudes/orientation	2.9 (1.3)	2.5 (1.4)	2.8 (1.3)	1.51	.23
Total	28.3 (6.8)	20.1 (8.5)	26.0 (7.8)	32.51*	1.07

Note: * $p < .0025$. PCL-YV = Psychopathy Checklist-Revised, YLS/CMI = Youth Level of Services/Case Management Inventory.

Figure 2.2
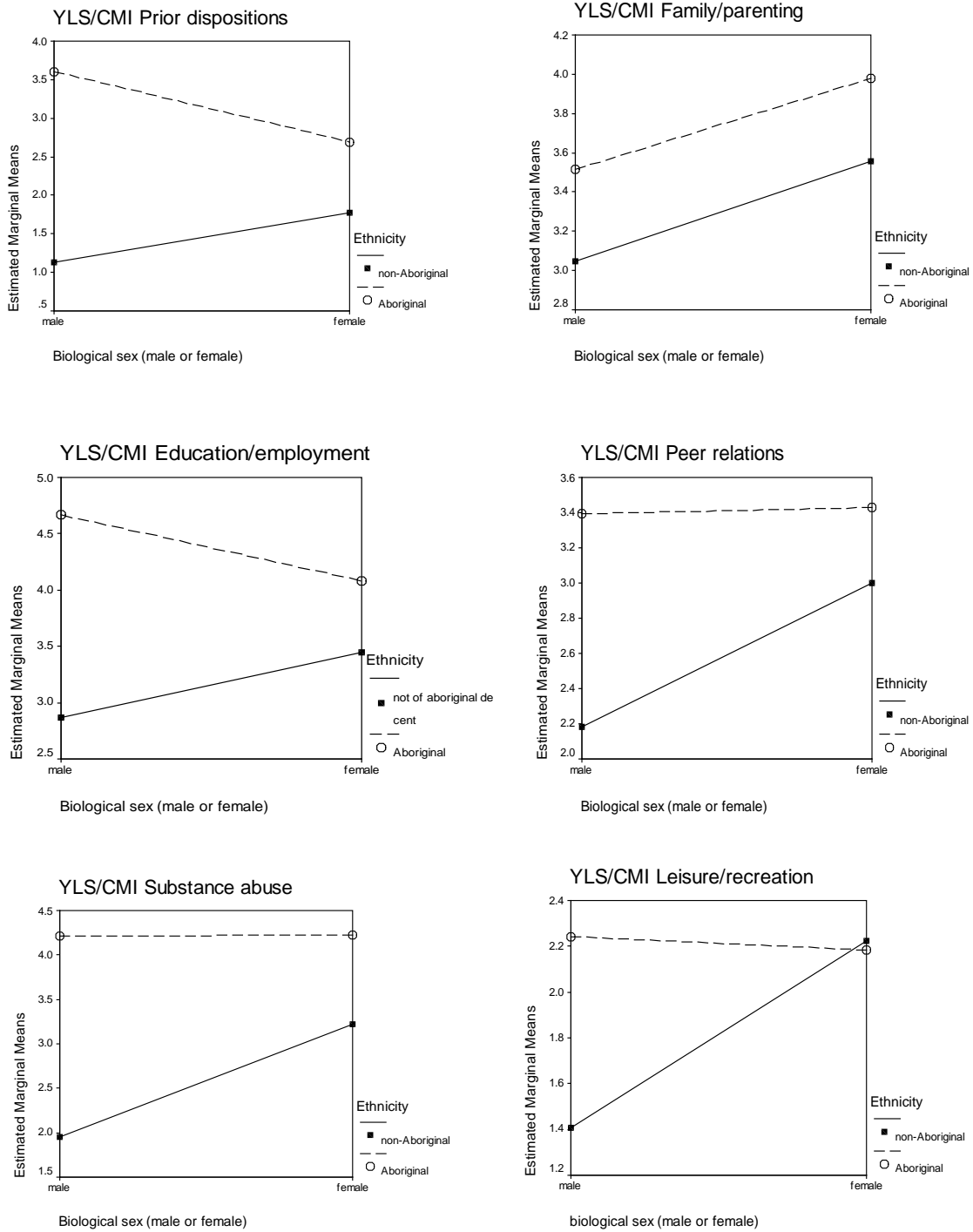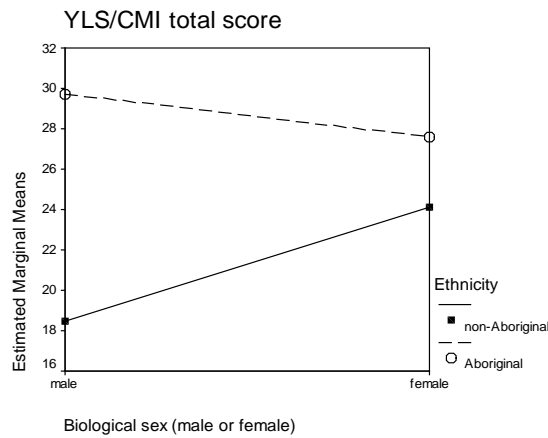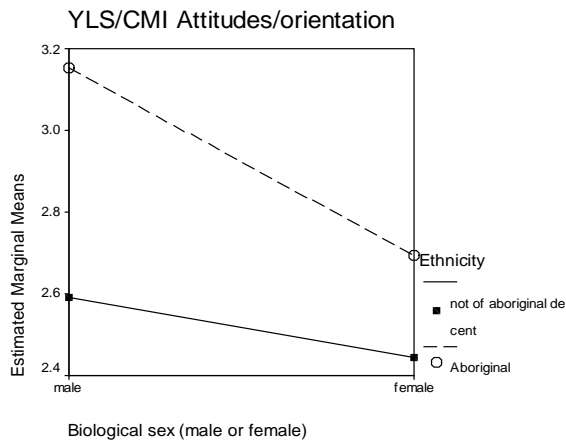
MANOVA Gender x Ethnicity Interaction Plots for YLS/CMI

YLS/CMI Prior dispositions

YLS/CMI Family/parenting

YLS/CMI Education/employment

YLS/CMI Peer relations

YLS/CMI Substance abuse

YLS/CMI Leisure/recreation

Figure 2.2 (continued)

YLS/CMI Personality

Biological sex (male or female)

YLS/CMI Attitudes/orientation

Biological sex (male or female)

YLS/CMI total score
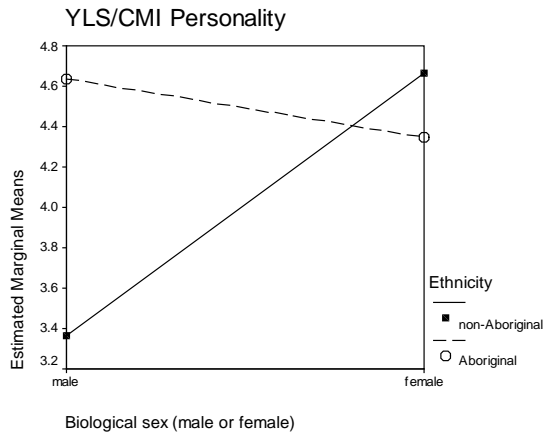

Biological sex (male or female)

Figure 2.3

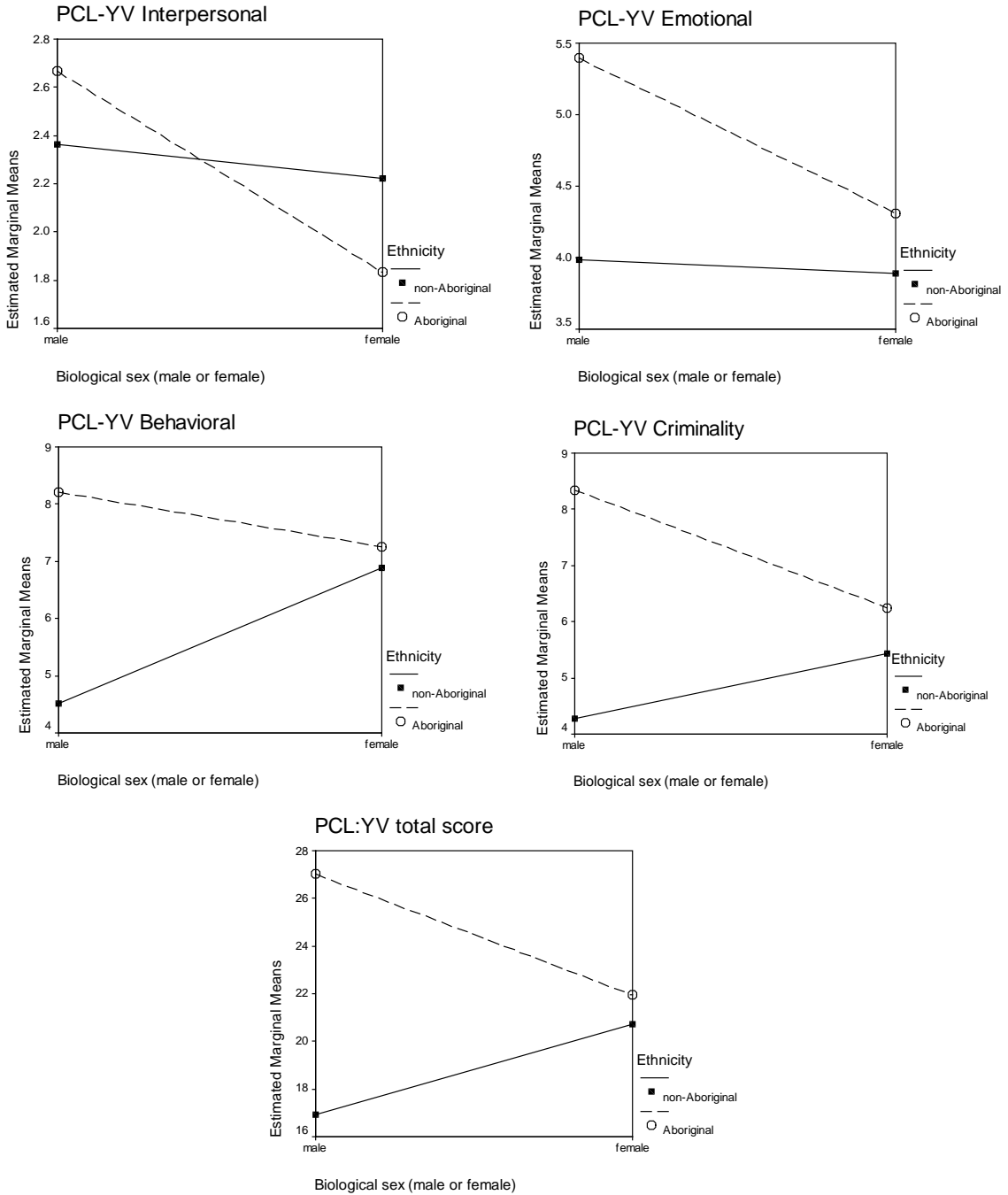*MANOVA Gender x Ethnicity Interaction Plots for PCL-YV*

Figure 2.4

MANOVA Gender x Ethnicity Interaction Plots for VRS-YV