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BULLETIN 4: PREDICTION AND RISK/NEEDS ASSESSMENT

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This bulletin presents a summary of a chapter included in Loeber and Farrington's (2012) *From Juvenile Delinquency to Adult Crime*. It provides a review of available knowledge regarding the prediction of early adult offending (focusing on the age range of 18 to 29 years) on the basis of information available during the juvenile years and of assessment tools for formulating these predictions (see Vincent, Terry, & Maney (2009) for reviews of instruments cited in this chapter). The chapter begins with a discussion of general issues regarding prediction and assessment, including the parameters of risk prediction and legal and ethical issues associated with risk assessment. We then provide a brief summary of risk factors associated with criminal activity. Technical issues in the conduct of risk assessments are discussed, followed by reviews of the major established juvenile and adult risk assessment tools. The chapter concludes with research and clinical recommendations relating to risk assessment and prediction.

The Parameters of Risk Prediction and Assessment with Youth

The prediction of the onset and persistence of criminal activity depends on the early identification of serious and violent individuals and circumstantial factors that facilitate such identification. Three concepts are relevant to our analysis of risk assessment and prediction. Risk factors refer to characteristics of the youth or his or her circumstances that increase the likelihood they will engage in delinquency (e.g., a history of conduct

disorder). *Criminogenic needs* factors (also known as dynamic risk factors) are risk factors that can be changed, and, if changed, could reduce the likelihood of engagement in antisocial behaviors (e.g., antisocial peer associations). Strength or protective factors are features of the youth or his or her situation that can buffer the effects of risk factors (e.g., a positive bond between youth and parent can reduce the impact of negative peer associations).

The identification of the risk, need, and protective factors is both a theoretical and empirical issue (see, Farrington, 2004; Guerra, Williams, Tolan, & Modecki, 2008; Rutter, Giller, & Hagel, 1998) and will be explored in more detail later in this chapter. However, several points need to be stressed here. First, different risk and protective factors may predict the onset and desistence from delinquency. For example, early drug abuse may be associated with the onset of criminal activities, but the establishment of a positive social bond may be associated with desistence from the activities. Second, the relative importance of risk, need, and protective factors may vary with developmental age. For example, some drug and alcohol use assumes decreasing influence through adolescence, whereas peer group influences assume increasing importance. This presents a challenge to assessing risk for delinquency during late adolescence because we are dealing with a period of transition between older adolescence and early adulthood. However, much of the available research focuses either on adolescents or adults, and relatively little information is available for the transition years.

The Contexts of Risk Assessments

Risk assessments are relevant in a range of criminal and civil legal decisions, such as pre-charge diversion;, pre-trial detention, eligibility for alternative measures programs, and waivers to adult and mental health proceedings, sentencing, and dispositions. While some of these decision contexts may call for a narrow focus on risk for future delinquency because a quick decision needs to be made, most decisions require an assessment of "needs" (or dynamic risk factors) as well. Assessing the need factors underlying risk is important in any decision where a disposition or intervention is to be provided to address the risk factor. If, for example, negative peer associations and substance abuse are major risk factors for delinquency, then these factors can be identified as need factors to be addressed in any intervention effort. The term *risk management* will be used when referring to the identification of needs for purposes of reducing risk.

The selection of the risk assessment tool, and consequently the amount of information needed from the tool, depends on the nature of the decision in question. Pre-trial detention or classification decisions will often require an estimate of the likelihood of committing a violent offense over some short period of time. Similarly, decisions such as those relating to eligibility for pre-charge diversion or pre-trial alternative measures may call for general predictions of the likelihood of reoffending. However, any decision requiring longer-term decisions, such as disposition, case planning, or management may call for an assessment of the criminogenic needs underlying the risk factors as well as any strength or protective factors.

Another aspect of this issue concerns the relation between the assessment and the ultimate legal question. As Heilbrun (2010) stresses, a direct link does not always exist between the two. A prediction of the likelihood of engaging in a violent sexual assault is

directly linked with a designation of violent sexual predator. However, an estimate of the likelihood of engaging in a criminal act might be only one consideration in a decision about placement within an institutional or community program. Care must always be taken in evaluating the relevance of the assessment to the judicial decision to be made.

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Contexts of Risk Assessments

Forensic risk/needs assessments are used within a variety of police, judicial, and correctional decision contexts (Heilbrun, 2001; Hoge, 2012; Hoge & Andrews, 2010). These include pre- and post-charge diversion programs where decisions are based on the level of risk presented by the youth and where intervention programs will be developed to address criminogenic needs of the young person. Pre-trial detention programs will generally involve evaluations of risk among other considerations. Decisions within juvenile court processing regarding transfers to the adult system often depend on evaluations of risk and of needs that could be addressed in either the juvenile or adult systems. Judges' disposition decisions following findings of guilt are often influenced by risk and needs assessments provided through pre-sentence or pre-disposition reports. These are designed to provide the court with guidance regarding the best course of action to follow in the case.

Considerable variability exists in the way in which risk/needs assessments are

formulated and reported. Variations occur, first, in the source of the assessment. In many cases a mental health professional will conduct the assessment. This is particularly true for waiver or civil commitment proceedings requiring a mental health assessment. Non-mental health professionals, such as probation officers, intake officers, correctional officers or youth workers, also conduct risk/needs assessments; these individuals should have received specialized training.

Variability also exists in the procedures employed to conduct the assessments. Some judicial and correctional systems employ no formal or structured assessment procedures. For example, a correctional officer may interview the youth and on the basis of his or her experience form a judgment about risk level. In other cases more or less structured procedures might be employed. These would normally be based on clinical interviews and possibly the use of standardized tests. The latter is common in the case of psychologists or psychiatrists assigning mental health diagnoses. However, and as we will see below, a number of standardized and validated procedures have been developed to guide the collection and synthesis of information to yield estimates of risk and need. These are often suitable for use by both mental health professionals and trained judicial and correctional personnel.

Relatively little information is available regarding the frequency of use of standardized risk and needs assessment procedures in correctional or forensic decision contexts. Informal observations would suggest that many systems employ only unstructured assessments or locally developed and non-validated instruments. Mulvey and Iselin (2008) have suggested that many of the reports provided to judges to aid in disposition decisions are based on informal assessment procedures. This is unfortunate

because, as we will see below, a number of validated, standardized instruments are available to guide such decisions.

Legal and Ethical Considerations

Legal and ethical issues arise in connection with many forensic risk assessments (Grisso & Applebaum, 1992; Heilbrun, 2001,2010; Heilbrun, Grisso, & Goldstein, 2008; Melton, Petrila, Poythress, & Slobogin, 2007). For example, the Federal Rules of Evidence specify the criteria relevant to admissibility of expert testimony, and this includes testimony based on risk assessments. Other sources of guidance are from professional practice and ethical guidelines (Heilbrun, 2010, 1992; Melton et al., 2007). The American Psychological Association's (APA) *Ethical Principles of Psychologists and Code of Conduct* (APA, 2002) provides a broad range of guidelines regarding psychological practice, and a group within a Division of APA, the Committee on Ethical Guidelines for Forensic Psychologists (1991), provides standards specifically applicable to forensic practices, including the conduct and reporting of risk assessments.

Practice guidelines regarding the use of tools for conducting risk assessments also are available. Heilbrun (1992) offered the following recommendations regarding the selection and use of such instruments: be commercially available, have a manual, and be critically reviewed in the literature; have adequate reliability and validity demonstrated; be relevant to the forensic decision; be administered using standard procedures; scores should be interpreted with reference to populations and contexts that are similar to that of the evaluee; when possible, objective tests and actuarial procedures should be used; and response style should be considered, as distorted responding may negate the results of the

assessment. Importantly, it must be kept in mind that practice and ethics guidelines only govern the actions of the relevant mental health providers. Other professionals such as probation or correctional officers may not be affected by any professional guidelines relevant to conducting risk assessments.

A second source of guides in the conduct of risk or risk/needs assessments may be found in policy statements and practice guidelines developed in specific jurisdictions. Many agencies in the United States have adopted standardized tools to guide the conduct of these assessments and an increasing number have developed case planning and management procedures directly tied to the assessments.

Current Knowledge Regarding the Prediction of Offending in Early Adulthood

Three related areas of theory and research relevant to the prediction of late or early adult onset offending have emerged: (a) analyses of the trajectories of criminal offending, (b) identification of risk and protective factors, and (c) a developmental life-course perspective integrating these two areas. We will provide only brief summaries of these literatures in this chapter but will refer the reader to more comprehensive reviews.

Efforts to identify stable trajectories of criminal careers have focused on two patterns labeled life-course persistent delinquency and adolescent-limited delinquency (Loeber & Stouthamer-Loeber, 1998; Moffitt, 2003; Thornberry, 2005). The life-course persistent pattern describes the case where evidence of conduct problems appears during the preschool years, escalates through early childhood and adolescence, and persists into adulthood. Adult offenders convicted of very serious crimes often exhibit this pattern. The adolescent-limited pattern on the other hand describes the case where antisocial acts

first appear in adolescence. The criminal activity in this case is generally not of a serious nature and the individual usually desists from criminal activities by later adolescence.

The issue of trajectories is of particular concern in the present case because of our focus on the age 18 to 29. This is the period when youth with early signs of a life-course persistent pattern either persist in these activities or desist. The first appearance of criminal activities after age 18 has generally been considered relatively rare, but it does occur and can be considered an extension of the adolescent-onset pattern. Although the available evidence is equivocal regarding the number or nature of the trajectories (Piquero, Farrington, & Blumstein, 2007; Piquero, Hawkins, & Kazemian, 2012; Sampson & Laub, 2003), the information provides some guidance regarding the prediction of criminal activity during the early adult years.

The second area of relevance to prediction concerns the identification or risk and protective factors associated with the onset, persistence, and desistence from criminal activity (see Hoge & Andrews, 2010; Lipsey & Derzon, 1998; Loeber & Stouthamer-Loeber, 1987; Thornberry & Krohn, 2003). A large and growing literature on these factors derives from both cross-sectional and longitudinal studies. Of particular value are the long-term longitudinal studies such as the Cambridge Study in Delinquent Development (Farrington, 2004, 2005), Pittsburg Youth Study (Loeber, 1990; Loeber, Farrington, Stouthamer-Loeber, & White, 2008) and Rochester Youth Study (Thornberry, 2005). A wide range of contextual (e.g., criminality in family of origin, high crime neighborhood) and individual (e.g., antisocial attitudes, negative peer associations) factors have been identified in this research.

Several cautions should be noted. First, conceptual and methodological issues persist in this research (O'Connor & Rutter, 1996; Rutter et al., 1998). Conceptual issues relate to the difficulty of identifying causal factors among the correlates identified. Methodological problems involve subject loss and the comparability of measures at different points in data collection. Second, the applicability of the risk factors across gender, cultural group, and age has not always been well established. Another issue is that few efforts have been developed to identify strength or protective factors. These are important because they represent potential moderators of the effects of risk and are associated with desistence from criminal activity. Two categories of potential risk factors are worthy of further discussion and will be described later: mental health and personality variables.

The third relevant development is represented in efforts to formulate a developmental life-course perspective on the prediction of criminal behavior (Catalano & Hawkins, 1996; Farrington, 2004, 2005; Guerra et al., 2008; Loeber, Slot, & Stouthamer-Loeber, 2006; Thornberry, 2005). Evaluating risk requires consideration of the developmental stage and social context (Mulvey, 2005). Even the relevance of risk factors can change across time (see Odgers, Vincent, & Corrado, 2002 for a review). For example, smoking prior to age 12 is a significant risk factor, but smoking at age 15 when experimentation is a normal part of development or in early adulthood when smoking is legal would not be risk factors for offending.

Another key developmental concept for assessments of risk for violence and serious offending is the impact of maturation on the time frame for which predictions remain accurate. A significant limitation with attempts to identify youth who will

become chronic and violent offenders is the potential for a high false positive rate. A significant number of youth who engage in violent behavior at one stage of development do not continue to do so as their development proceeds. Indeed, at least 50% of children who initiate pervasive and serious antisocial behavior between ages 6 and 12 do not develop into seriously antisocial adults (Patterson et al., 1998; Robins, 1974), and an even greater portion of serious offending adolescents do not develop into antisocial adults (Moffitt & Caspi, 2001; Piquero et al., 2012). The National Youth Survey (Elliott, Huizinga, & Menard, 1989) found that for about 50% of youths, violent behavior persisted into adulthood if their first violent acts occurred before age 11, about 30% persisted if their violence started between ages 11 and 13, and about 10% persisted if their first violent acts occurred in adolescence. Taken as a whole, the research suggests that even youth who engage in the most serious violence or antisocial behavior at a young age have only a 50-50 chance of persisting.

The Role of Mental Health Variables in Risk Assessment

The relation of mental health problems to offending and violence is complicated. On the one hand, many individuals with mental disorders do not have a violent or delinquent history. On the other hand, many individuals with a mental disorder are involved in the justice system. (Reviews of these data have been provided by Atkins, Pumariega, & Rogers, 2003; Copeland, Miller-Johnson, Keeler, Angold, & Costello, 2007; Templin, Abram, McClelland, Dulcan, & Mericle, 2002; Wasserman, McReynolds, Lucas, Fisher, & Santos, 2002).

There are several potential explanations for this relation between mental disorder and offending and possibly even persistent offending into early adulthood. First, some child and adolescent mental disorders, or symptoms of mental disorder, may be causally connected to violence and antisocial behavior: Namely, disruptive behavior disorders and attention deficit-hyperactivity disorder (ADHD). This potential causal connection is evidenced in a concept known as a hyperactive-impulsive-attention deficit (HIA) syndrome (Loeber, 1990), which when combined with conduct problems, seems to be found in children with early initiation of antisocial behavior that is frequent and severe (Lynam, 1996).

With respect to other types of disorders, mood disorders may relate to violent offending in cases where the mood disorders manifest in anger or hostility (Vincent, Grisso, Terry, & Banks, 2008). Many youths with conduct problems have some form of anxiety (Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999), and post-traumatic stress disorder in particular can underlie tendencies to react aggressively (Charney, Deutch, Krystal, Southwick, & Davis, 1993). Less is known about the connection between psychosis and offending or violence among youth.

In some cases, mental disorder may not be connected to actual offending, but youths and adults with mental health problems wind up in the justice system as a consequence of the lack of community mental health services. Until further research can disentangle the relationships, the evidence implies that most risk assessment schemes should contain an item or items related to attention problems and impulsive behavior. Further, until we know more about the connection between other symptoms of mental illness and offending among youth, risk assessment tools may consider containing some

form of override feature in cases where examiners have reason to believe symptoms of mental illness are connected to violent or antisocial outcomes for a particular youth.

The Role of Personality and Callous-Unemotional Traits in Risk Assessment

The features of some personality disorders (e.g., Borderline, Narcissistic, Antisocial) are likely to get some individuals in trouble with the law. Given that these disorders tend to have their roots in childhood and adolescence, these personality traits may be related to early offending and may be a good predictor of offending into early adulthood. Psychopathic personality disorder probably has been the most widely studied with respect to its relation to future offending, particularly violent offending (see Hare, 2003 for a review). The association between psychopathic personality and later offending and violence among adults has been documented in a number of meta-analyses of prospective studies (e.g., Hemphill, Hare, & Wong, 1998; Leistco, Salekin, DeCoster & Rogers, 2008). Many psychopathic features get people in trouble with the law, including impulsive and sensation-seeking behavior, callous and guiltless emotions, and an arrogance characterized by a desire to exert power over others.

The relation between psychopathy and early adult offending is more complicated when assessing young people. Many scholars acknowledge that diagnosing or labeling a youth as a "psychopath" is inappropriate given developmental changes that affect personality through adolescence. There is a youth psychopathy assessment designed to assess psychopathic traits (reviewed later) among adolescents, which has demonstrated a small to moderate effect for prediction of violence and re-offending but most research has not examined its prediction of offending into early adulthood.

Instead, the focus for youth has been on a 'syndrome' that involves the combination of *callous-unemotional traits AND serious conduct problems*, referred to as CU-CD. Callous-unemotional traits distinguish subgroups of seriously conduct-disordered children and adolescents that experience minimal distress when engaging in criminal behaviors (Frick, O'Brien, Wootton, & McBurnett, 1994) and are more severe and stable in their offending patterns. In a prospective study, Frick, Kimonis, Dandreaux, and Farell (2003) discovered that callous-unemotional features were relatively stable during childhood for children that had CU scores falling in the lower or upper quartiles at age 6 if they also had serious conduct problems. Parent and teacher ratings of Interpersonal Callousness (IC) in children ages 7 to 12 appear to predict adult psychopathy ratings in the same youths at ages 18 to 19 (Burke, Loeber, & Lahey, 2007).

The stability of these traits from childhood or adolescence into adulthood still has proven to be only modest. Longitudinal studies examining measurement invariance in measures of IC or Psychopathic features indicate that there is measurement invariance from late adolescence to young adulthood (6-years; Loney, Taylor, Butler, & Iacono, 2007). However, one longitudinal study found that of the juveniles who scored in the top 20% of psychopathic traits at age 13, the vast majority (86%) did not score above a diagnostic threshold on a measure of psychopathic traits as adults (11 years later) (Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007). Although the fact that 14% continued to score high as adults makes this construct relatively stable as far as youth disorders are concerned, practically speaking use of assessments of these traits in childhood and adolescence to predict who would be psychopathic as adults would lead to a large number of false predictions. This body of literature indicates that it is crucial for

risk assessment schemes to contain an item or items related to impulsivity, attention problems or sensation-seeking, and low empathy and remorse or callousness, all of which are strongly related to chronic offending.

Risk/Needs Assessment Formats

The four types of assessment formats are unstructured clinical, static actuarial, static/dynamic actuarial, and structured professional judgment, although the categorization is something of an oversimplification (Borum & Verhaagen, 2006, Hoge, 2008). *Unstructured clinical assessments* depend on the unguided collection of information and the formulation of a judgment about level of risk through subjective interpretation of the information. For example, a psychologist may interview the client in an unstructured manner and, on the basis of his or her education and experience, will formulate a judgment about the likelihood the individual will engage in violence or an antisocial act. Research has shown that unstructured clinical assessments are associated with poor levels of reliability and validity. Indeed, when mental health professionals make specific, unstructured predictions that a person "will" or "will not" be violent, they will likely be accurate in no more than one-third of cases (Grisso & Tomkins, 1996; Monahan, 1996; Rubin, 1972).

The different approaches to assessing risk can vary in terms of the amount of structure imposed on the three central decisions that arise in the assessment process: 1) which risk factors to consider and how to measure them; 2) how to combine the risk factors; and 3) how to generate the final risk estimate (Monahan, 2008). Standardized risk assessments are based on structured procedures for the collection and synthesis of

information. *Actuarial measures* constitute a specific type of standardized measure. Structure is imposed on each of the three major decisions in the actuarial assessment approach: there is no discretion in terms of selecting, measuring, or combining risk factors, and the final risk estimate is determined by a priori, fixed rules. Items on these measures are often empirically derived using a construction sample with known outcomes (the developers know who recidivated and who did not) to identify the factors that predicted re-offense in that group. An algorithm is created to categorize people according to the likelihood of reoffending.

Actuarial decision-making means specific risk predictions are formulated based on a statistical formula. Static actuarial measures include only historical and invariant items. Bonta (1996) described these as second generation risk assessment instruments (unstructured clinical procedures constitute the first generation). Although scholars asserted that actuarial tools are superior to clinical judgment in the prediction of violence and reoffending (Grove & Meehl, 1996; Quinsey, Harris, Rice, & Cormier, 1998), the incremental gain in predictive validity is minimal (Grove, Zalk, Lebow, Snitz, & Nelson, 2000; Litwack, 2001). Moreover, Bonta and several other critics have cautioned that static actuarial instruments are for the most part atheoretical, cover only a limited range of predictor variables, and are not useful for intervention planning or reassessments to measure individual progress (Borum, 1996; Dvoskin & Heilbrun, 2001; Hart, 2003; Hoge & Andrews, 2010).

Static/dynamic actuarial measures, termed third generation measures by Bonta (1996), incorporate both static and dynamic risk factors. For the most part, these tools include static and dynamic risk factors that were selected due to a known empirical

association with later offending, as opposed to identifying items based on what predicted in a particular construction sample. As such, these tools are generally theoretically and empirically grounded. In the juvenile offender area, these instruments are often referred to as risk/need actuarial tools. These tools can be used for reassessment and for intervention planning and often include an over-ride procedure to the final risk level to account for idiosyncratic factors that may affect an individual's risk level but would not be reflected in the overall score.

The fourth category of risk assessment tools is termed *structured professional judgment* (SPJ). In this approach to assessing risk for violence, structure is imposed on which risk factors should be considered and how they should be measured, but the way in which factors are combined is left to the discretion of the evaluator. The evaluator's discretion similarly is valued in terms of generating the final estimate of risk. Like the static/dynamic actuarial tools, SPJ tools are informed by the state of the discipline in clinical theory and empirical research on static and dynamic factors to include factors that guide decisions about risk and treatment planning. The intent was to improve human judgment by adding structure, and to improve actuarial decision-making by adding more rater discretion (Borum & Douglas, 2003). These instruments emphasize "prevention" as opposed to "prediction." They contain static and dynamic risk factors and protective factors, assuming that risk can change as a result of treatment quality and quantity, developmental factors, protective factors, context, and the passage of time. The difference between SPJ tools and the static/dynamic actuarial tools is that SPJ tools can result in a final judgment by the rater regarding the overall level of risk (typically communicated as Low, Moderate, or High) based on a combination of risk factors,

protective factors, and idiosyncratic factors present. No algorithm is used to produce a quantitative index of risk level.

Summarizing Debates

Considerable research has been conducted on the relative efficacy of unstructured clinical judgment versus standardized assessments (Baird & Wagner, 2000; Bonta, Law, & Hanson, 1998; Grove & Meehl, 1996; Grove, et al., 2000). The research consistently demonstrates that standardized assessments, whether based on actuarial or structured judgmental procedures, yield better predictions of future behavior than unstructured clinical assessments. This evidence is strong and at this point is rarely disputed. However, some disagreements in the field remain.

First is the issue of actuarial versus SPJ tools for estimates of an individual's risk level. There is an accumulating body of literature with adult populations that suggests SPJ-based decisions about risk may have incremental predictive validity over simple score-based decisions (Douglas, Yeoman, & Boer, 2005). The validity or reliability of actuarial over-rides is still largely unknown. More recently, a very comprehensive meta-analysis of adult risk assessment tools indicated that, on average, when compared directly within the same sample, SPJ and actuarial tools have equivalent predictive validity for re-offending (Guy, 2008).

Another related debate is the value of including dynamic risk factors or criminogenic needs factors in risk tools. One argument is that the inclusion of needs factors in determinations of risk level (e.g., Low, Moderate, or High risk) diminishes the predictive accuracy of risk tools and, therefore, should be in a separate tool. The premise

of this argument is that the goal of a risk assessment should be prediction. Of course, research has demonstrated that certain dynamic risk factors elevate risk for delinquency (e.g., Farrington & West, 1993; Moffitt & Caspi, 2001), which suggests they should be included in any risk tools (Austin, 2006). Further, the inclusion of dynamic risk factors is essential for measuring changes or progress in risk level and for case management.

Statistically speaking, the debate rests around whether dynamic risk factors or needs factors add incremental predictive value to quantitative risk levels. Practically speaking, however, this debate should consider that once an offender is labeled as high-risk by a tool with unchangeable factors, there is no room for documenting developmental changes. An issue that continues to complicate this discussion is the definition of "needs." Dynamic risk factors can be considered *needs* in the sense that they may elevate risk for re-offending, yet are theoretically changeable. This is in contrast to other types of *needs* youth may have which do not show a significant relation to later offending among groups of youth, such as depression. In our view, the needs that relate to reoffending are an essential feature of risk assessment tools; however, needs that do not relate to this or similar outcomes of interest belong in a separate assessment.

Review of Risk Assessment Instruments

Tools were selected for inclusion in this review if the tools: 1) were developed to assess risk for general antisocial behavior or violence in the community; 2) were designed to be generalizable rather than jurisdiction or sample-specific (this excludes tools that are modified for each site like the Wisconsin classification system, Baird, 1981); 3) are administered by a trained rater/examiner or professional (i.e., not self-report inventories);

and 4) have enough research evidence (including peer-reviewed research) to be considered *evidence-based* or *promising* at the time of this review. We defined evidence-based and promising as having some evidence of inter-rater reliability and predictive validity for re-offending and enough information for replicable assessments, such as having a test manual. Categorization of a tool as evidence-based (versus promising) requires reliability evidence and validation from an independent party who receives no economic gain from the tool (Austin, 2006).

The review included the following instruments used with youth (ages 12-17 years): *Youth Level of Service/Case Management Inventory* (*YLS/CMI*; Hoge & Andrews, 2006), *Structured Assessment of Violence Risk in Youth* (*SAVRY*; Borum, Bartel, & Forth, 2006), *Washington State Juvenile Court Assessment* (*WSJCA)* and the related *Youth Assessment and Screening Instrument* (*YASI*; Barnoski, 2004); *North Carolina Assessment of Risk (NCAR)*; *Psychopathy Checklist: Youth Version* (*PCL:YV*, Forth, Kosson, & Hare, 2003). Six instruments designed for use with adults were identified: *Classification of Violence Risk* (*COVR*; Monahan et al., 2005); *Historical-Clinical-Risk Management-20* (*HCR-20*)*;* Webster, Douglas, Eaves, & Hart, 1997); *Violence Risk Appraisal Guide* (*VRAG;* (Harris, Rice, & Quinsey, 1993; *Level of Service Inventory-Revised* (*LSI-R*; Andrews & Bonta, 1995); *Statistical Information for Recidivism Scale (SIR*; Nuffield, 1982); and *Psychopathy Checklist–Revised* (*PCL–R*; (Hare, 1991, 2003). Features of the instruments and relevant psychometric evidence is presented in Hoge et al. (2012).

Review of Meta-Analyses Comparing Risk Assessment Instruments

Several meta-analyses have compared one or more tools among youth (Olver, Stockdale, & Wormith, 2009; Schwalbe, 2007a, 2007b) or adults (Campbell et al., 2009; Gendreau, Goggin, & Little, 1996; Gendreau, Goggin, & Smith, 2002; Guy, 2008; Hanson & Morton-Bourgon, 2009; Walters, 2006). Taken together, the studies comparing the aggregate predictive validity of various actuarial and SPJ tools indicate that there often is no definitive advantage for either approach with respect to predicting who will reoffend. When differences are observed, they most often are in the direction toward the actuarial approach; the magnitudes of the differences, however, typically are small. For example, examining all available studies in which an SPJ and an actuarial measure was studied in the same sample, Guy (2008) found that regardless of whether the predictor for the SPJ tool was the SRR or the numeric rating, the mean weighted effect sizes for comparisons between the SPJ and actuarial approaches were moderate in size and virtually identical for all comparisons. For violent (including sexual) recidivism, the mean weighted AUC values in the SRR vs. actuarial comparison were both .61, and for the SPJ numeric total score vs. actuarial comparison, the corresponding mean weighted AUC values were .71 and .68, respectively.

Examining several tools for use with adults with respect to their predictive validity for general recidivism, Gendreau, Little, and Goggin (1996) reported that the LSI-R demonstrated a slightly larger mean effect size (.33, $k = 28$) compared to the Wisconsin Classification System (Baird, 1981; 32, $k = 14$) or PCL-R (.29, $k = 9$). Gendreau and colleagues later compared the predictive validity of the LSI/LSI-R relative to the PCL/PCL-R for violent recidivism (Gendreau, et al., 2002) and found that the effect sizes were highly similar in studies in which both tools were used in the same

sample. Mean correlations for the LSI-R and the PCL-R for general recidivism were .37 and .26, respectively, and for violent recidivism were .24 and .22, respectively. A similar pattern was observed for between-study comparisons of the tools.

Campbell et al. (2009) examined prospective evaluations of forensic psychiatric patients and general offenders in which the HCR-20, LSI/LSI-R, PCL/PCL-R, SIR, or VRAG was used. The authors concluded that each tool predicted violent recidivism with at least a moderate magnitude of success, and that although the LSI-R, PCL-R, and SIR yielded the most precise point estimates, no one measure should be singled out as being most effective in predicting violent recidivism. Importantly, the authors did not evaluate the performance of the only SPJ tool included (the HCR-20) as it was intended to be used in clinical practice (i.e., SRRs were not included, which, as noted above, consistently yield larger effect sizes as compared to the numeric total scores for the HCR-20).

With respect to youth instruments, examining the predictive validity of 42 effect sizes coded from 33 samples that reported on 28 risk assessment instruments (primarily actuarial tools), Schwalbe (2007a) reported that the mean weighted AUC for all tools and recidivism was .64; substantial variability was observed (range of AUCs: .55 - .78). Relative to “first” or “second” generation tools, higher levels of accuracy were observed among “third generation” tools, such as the YLS/CMI. Similar to findings for the overall sample, the mean weighted AUC value (derived from 11 effect sizes) for the YLS/CMI was .64 (95% C.I. = .51–.78).

In a more recent meta-analysis of the YLS/CMI, PCL:YV, and SAVRY from 44 samples that represented 8, 746 youth, Olver et al. (2009) found that all three measures were significantly associated with general, nonviolent, and violent recidivism with

comparable, moderate degrees of accuracy. In head-to-head comparisons of tools used in the same sample, mean effect sizes were comparable for the YLS/CMI and PCL:YV/SAVRY comparisons. Of the two studies in which the YLS and SAVRY were compared directly, predictive accuracy was comparable in one study (Catchpole & Gretton, 2003), and the SAVRY was more predictive in the other (Welsh et al., 2008). However, it is important to note that in the latter study the SAVRY was completed by trained masters level research assistants retrospectively based on file review whereas the YLS/CMI had been completed by probation officers in the field. Thus, comparisons should be made with caution. The mean weighted correlation from these two studies was .43 for the SAVRY and .29 for the YLS.

Secondary Analyses

Our review indicates that there has been considerable progress in the area of risk assessment to predict and prevent later offending among offending populations. However, whether these tools maintain their relevance (or predictive accuracy) during different developmental periods is unknown. In other words, the question is whether tools are as adept at predicting reoffending behavior occurring during early adulthood as tools are at predicting reoffending behavior during adolescence (for youth tools, which are generally valid for ages 12 to 17) or later adulthood (for adult tools, valid for ages 18 and older).

The co-authors and colleagues conducted a very preliminary investigation into the validity of assessment tools for assessing risk at different developmental periods (Vincent, Fusco, Gershenson, & Guy, 2010, unpublished data). This involved a search of

all publications and unpublished data sets known to the authors which a) included one of the assessment tools reviewed in this chapter, b) studied an offender (corrections, pre-trial detention, or probation) or forensic psychiatric population (civil psychiatric samples were not included), and 3) a measure of re-offending in the community (self-report or official records). The researchers requested data sets from the authors to be used in a secondary data analysis.

The first question was whether the tools were accurate at predicting reoffending during early adulthood (defined as age 18 to 25 years), relative to adolescent re-offending (for youth tools) or later adult re-offending (for adult tools). This required generating subsamples that included only cases that had a follow-up period spanning into early adulthood. Thus, the researchers included only cases that had been assessed on an instrument (or released from an institution where applicable) prior or equal to age 23, which would provide at least one or two years follow-up into early adulthood. Cases that were not tracked until age 19 or older also were excluded from the analyses. As such, a considerable number of cases were dropped from many of the datasets.

The researchers used Receiver Operator Characteristic Curves (ROC), conducted in SPSS, to examine the predictive accuracy of each instrument for any reoffending (includes all types of offenses) and for violent reoffending specifically. AUCs ranged from non-significant at .53 (for the SAVRY's prediction of any reoffending) to .82 (for the HCR-20's prediction of violent offending during early adulthood). The MedCalc software was used to test whether AUCs differed significantly between the early adult and other developmental periods for each risk assessment tool. None of the AUCs were significantly different.

What can be said from the findings is that tools with statistically significant accuracy maintain that accuracy regardless of the developmental period in which re-offending occurred. Although we can compare AUCs (a measure of effect size) within tools, one should not try to interpret differences between tools. The analyses reported here did not account for confounding variables that would affect outcomes across studies, such as length of follow-up, operational definition of recidivism, and sample demographics (gender, race).

A significant limitation of ROC analyses is that they do not account for the length of time for which individuals had an opportunity to reoffend (time at risk). Therefore, the researchers conducted a second set of analyses using Cox Proportional-Hazards Regressions for each tool at each time period in which samples permitted a valid analysis in order to account for the potential confounding effects of time at risk. Cox regression is a semi-parametric test that models the relation between predictor variables and an *event* (i.e., any re-offense or violent re-offense) while accounting for time to the occurrence of the event. The dependent variable, *time at risk to re-offend*, is based on the *cumulative survival function*; that is, the proportion of cases "surviving" (i.e., not charged with or convicted of a new offense) at a particular point in time. The Cox regressions included all cases regardless of whether they had re-offended by estimating time to a hypothetical event for these *censored cases*. Inclusion of censored cases is essential because each released individual who has not recidivated, theoretically, could still be arrested in the future. The preferred index for interpretation is the Hazard function (Exp[B]), a ratio of the likelihood of a case to experience an event, given it has survived that long. For example, an Exp(B) of 1.40 indicates that a one unit increase in the risk assessment total

score would result, on average, in a 40% increase in the likelihood of a re-arrest, given a case has survived this long.

Time at risk was calculated separately for any re-offense and violent re-offense based on the days between the adjudication for the index offense (the offense that resulted in the subject being included in the sample and when the risk assessment was completed) or release from an institution (for samples from correctional or forensic hospital settings) and the first re-arrest. For non-recidivists, time at risk was calculated according to the final follow-up date for the whole sample. Results of these analyses illustrate that the risk tools were significant predictors of both violent and any reoffending after taking time at risk into account, regardless of the developmental period in which the offense occurred. The odds were similar for early adult recidivists and adolescent recidivists for most adolescent tools, with the exception of the SAVRY. For the adult tools, odds were also similar for early adult and adult recidivists.

In sum, risk assessment tools predicted re-offending during early adulthood as well as or better than reoffending that occurred during adolescent years for individuals who were first assessed and first offended during adolescence. Adult risk assessment tools conducted during early adulthood also were adept at predicting re-offending during this developmental period. This was true even after controlling for the amount of time an individual had to reoffend.

Unfortunately, there are several limitations with these analyses that limit the conclusions. Because of the selection of participants, the data sets cannot be used to determine what variables predict early adult onset offending. Risk assessment tool validation studies tend to include only cases who committed an offense in a set time

period onward. For many of the offenders in these studies, their index offense in the study would not be the first offense they ever committed in their life. One would need to use data from longitudinal studies of young community samples in order to determine which variables predicted early adult onset offending. Risk assessment validation studies do not gather data from people before they have ever offended. A second limitation is that the data did not permit examination of *continued* offending into early adulthood for adolescent samples. The data sets contained each case's first re-offense (any type), first violent re-offense, and in some instances the first non-violent re-offense specifically. Therefore, we do not have information about continued offending. The only exception was the NCAR data set. Unfortunately, analyses for early adulthood could not be conducted for the NCAR dataset because a very small number of youth reoffended in early adulthood during the two-year follow-up period (approximately 20).

Conclusions and Recommendations

Recommendations for Research. The most important conclusion from our review of the literature concerns the need for more information about the risk, need, and protective factors associated with criminal activity occurring during ages 18 to 29. We already have considerable information about factors influencing antisocial behaviors during the childhood and adolescence years and for the period 18 years and older. However, information about the specific periods of later adolescence and early adulthood is sparse. Likewise, information about factors that can identify those who will initiate offending during this age period is very sparse. Researchers are encouraged to focus more carefully on that period.

Of particular concern in the present case is the influence of normative life events for this early adult period, including school and work experiences, changes in the parental bond, and the establishment of new relationships. Contacts with the juvenile and adult justice and correctional systems are also of relevance for many youth. These variables are often not represented in the research, or, if they are, interactions among them are often not explored. For example, it is possible that forming a positive romantic relationship during early adulthood can mediate the effects of early school drop-out and criminal convictions on later offending. It is this type of interaction that must be explored before definitive answers can be found to the question of variables influencing early adult persistence and desistence (Thornberry, 2005).

The generalizability of current knowledge about the risk, need, and strength factors associated with early adult offending is also of concern. Much of the research is based on samples of American, Canadian, and British males from the majority culture. Our knowledge of the dynamics of early adult crime among females and those from minority ethnic and cultural groups is limited.

Limitations on our knowledge of the factors affecting early adult offending impact, of course, the validity of our assessment tools. We have seen that considerable progress has been made in developing and evaluating instruments for assessing risk, need, and strength factors in youth and in adults. Further, most of these measures display construct validity to the extent that they include the major risk factors associated with criminal activity. Indeed, the meta-analyses reviewed indicate all the tools selected for review in this chapter are comparable in terms of their predictive acumen.

The secondary analyses provide some important additional insights into the ability of risk assessment tools to predict re-offending occurring at different developmental periods, especially early adulthood. The tentative conclusion is that these tools predict re-offending during early adulthood as well as other time periods. Future analyses should use longitudinal studies of community samples that would permit post-hoc scoring of risk assessment tools using variables available in the data set (although a limitation of this approach would be that the investigation would be retrospective in nature). Additionally, risk assessment researchers could start recording data for every re-offense occurring during their follow-up periods so trajectory analyses can be conducted in the future, permitting examination of the prediction of continued offending into early adulthood versus desisted offending. Future efforts also could determine whether specific risk and criminogenic need factors within these risk assessment tools differentially predict continued offending.

Implications for Practitioners. The conclusions of this review provide some important guidelines for practitioners and policy makers. First, based on a wealth of findings, there are specific risk factors that should be contained in any risk assessment tool for youth in order to maximize its effectiveness. These factors include impulsivity, remorselessness, callousness-unemotional traits, inconsistent or lax discipline, and early onset violence. However, the relevance of these risk factors to onset of offending in early adulthood (18 to 29 years), or continued offending into early adulthood, is not well established. Further research on the issue of early adult onset offending may lead to the development of a new instrument or the modification of an existing measure.

SIDE BAR

Guidelines in the Conduct and Use of Risk/Needs Assessment

General standards are available for the conduct and interpretation of forensic assessments, including that presented by the American Psychological Association Committee on Ethical Guidelines for Forensic Psychologists (1991). Guidelines may also be provided within specific legal jurisdictions.

Several cautions should be observed in the conduct and use of forensic assessments of risk and needs (Heilbrun, 1992, 2010; Hoge, 2012; Hoge & Andrews, 2010). It is important, first, to insure that the assessment is consistent with due process rules. This involves, among other issues, insuring that the assessment directly addresses the legal or extra-legal decision in question. The outcomes of the assessment should not be used for any purpose other than the specific procedural or legal issue. Second, the instruments employed should demonstrate adequate reliability and validity for the decision in question and the youth being assessed. This may involve considerations regarding age, gender, language, or culture. Third, the assessment should be conducted by a trained and experienced assessor. Finally, in designing and conducting the assessment process it is important to keep in mind that we are dealing with youth going through a developmental process. This is a key consideration in insuring fair and valid assessments.

Second, it should not be assumed that the factors associated with the initiation of criminal activity or desistence are the same for the early adulthood years as for earlier or later developmental stages. In particular, normative transitions relating to school, work,

parental bonds, and the establishment of new relationships often assume unique importance during this period. For example, adult risk assessment tools should contain a measure of psychopathic personality or Cluster B-type personality traits given the moderate association with violence, yet it is unlikely that psychopathy would be a good predictor of early adult onset offending since these individuals tend to initiate offending behavior much earlier in life. We have seen that our knowledge of the role of these events in the prediction of criminal activity is limited at present, but a sensitivity to the issue is critical in dealing with this period.

This has implications for the selection of assessment tools. We have seen that existing youth and adult risk/need prediction instruments are of roughly equal value in terms of construct and predictive validity. However, instruments do vary somewhat in the variables represented, and the instrument selected should include those identified as of particular relevance for this period.

There also may be implications for interventions geared towards risk management or prevention of continued offending. Treatment strategies demonstrated to lead to desistence among adolescents may not work for those initiating offending later in life. For example, standard adolescent treatment programs for attitude change, peer group affiliation, or family therapies may not address the criminogenic needs of individuals initiating offending in early adulthood.

Finally, lessons for broad systemic changes exist. The period of early adulthood has been traditionally neglected when it comes to educational, vocational, mental health, and social services. Within most systems, individuals aged 17 to 21 years are shifted out of the adolescent services systems, and there is often little to replace those services.

Counseling and other treatment/support services to assist individuals to cope with substance abuse, employment and relationship issues arising during this period could ease the transition and help individuals avoid problems that often characterize these years.

REFERENCES

American Psychological Association (2002). Ethical principles of psychologists and code of conduct. *American Psychologist, 57,* 1060-1073.

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

Atkins, D., Pumariega,W., & Rogers K. (1999). Mental health and incarcerated youth, I: Prevalence and nature of psychopathology. *Journal of Child and Family Studies,* 8, 193-204.

Austin, J. (September, 2006). How much risk can we take? The misuse of risk assessment in corrections. *Federal Probation, (70)*2, 58-63.

Baird, C.S. (1981). Probation and parole classification: The Wisconsin model. *Corrections Today, 43,* 36-41.

Baird, C., & Wagner, D. (2000). The relative validity of actuarial- and consensus-based risk assessment systems. *Children and Youth Services Review, 22,* 839-871.

Barnoski, R. (2004). *Washington State Juvenile Court Assessment manual, Version 2.1* (Report No. 04-03-1203). Olympia: Washington State Institute for Public Policy.

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: Sage.

Bonta, J. S., Law, M, & Hanson, R. K. (1998). The prediction of criminal and violent recidivism among mentally disordered offenders: A meta-analysis. *Psychological Bulletin, 122,* 123-142.

Borum, R. (1996). Improving the clinical practice of violence risk assessment: Technology, guidelines, and training. *American Psychologist, 51*, 945-956.

Borum, R. & Douglas K. (2003). New directions in violence risk assessment. *Psychiatric Times, 20*, 102-103.

Borum, R., Bartel, P., & Forth, A. (2006). *Structured Assessment of Violence Risk in Youth (SAVRY).* Florida: Psychological Assessment Resources, Inc.

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

Burke, J., Loeber, R., & Lahey, B. (2007). Adolescent conduct disorder and interpersonal callousness as predictors of psychopathy in young adults. *Journal of Clinical Child and Adolescent Psychology, 36,* 334-346.

Campbell, M. A., French, S., & Gendreau, P. (2009). The prediction of violence in adult offenders. *Criminal Justice and Behavior, 36*, 567-590.

Catalano, R. F., & Hawkins, 1996. The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories* (pp. 149-197). Cambridge, UK: Cambridge University Press.

Charney, D., Deutch, A., Krystal, J., Southwick, S., & Davis, M. (1993). Psychological mechanisms of posttraumatic stress disorder. *Archives of General Psychiatry, 50,* 294-305.

Committee on Ethical Guidelines for Forensic Psychologists (1991). Specialty guidelines for forensic psychologists. *Law and Human Behavior, 15,* 655 – 665.

Copeland, W. E., Miller-Johnson, S., Keeler, G., Angold, A., & Costello, E. J. (2007). Childhood psychiatric disorders and young adult crime: A prospective, population-based study. *American Journal of Psychiatry, 164,* 1668-1675.

Douglas, K. S., Yeoman, M., & Boer, D.P. (2005). Comparative validity analysis of multiple measures of violence risk in a sample of criminal offenders. *Criminal Justice and Behavior, 32,* 479-510.

Dvoskin, J.A., & Heilbrun, K (2001). Risk assessment: Release decision-making toward resolving the great debate. *Journal of the American Academy of Psychiatry and the Law, 29*(1), 6-10.

Elliott, D.S., Huizinga, D., & Menard, S. (1989). *Multiple problem youth: Delinquency, substance use and mental health problems*. New York: Springer-Verlag.

Farrington, D. P. (2004). Conduct disorder, aggression, and delinquency. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology Second Edition* (pp. 627-624). New York: Wiley.

Farrington, D.P. (2005). (Ed.) *Integrated developmental and life-course theories of offending*. New Brunswick, NJ: Transaction Publishers.

Farrington, D. P., & West, D. J. (1993). Criminal, penal, and life histories of chronic offenders: Risk and protective factors and early identification. *Criminal Behaviour and Mental Health, 3*, 492-523.

Frick, P., J. Kimonis, E., Dandreaux, D., & Farell, J. (2003). The 4-year stability of psychopathic traits in non-referred youth. *Behavioral Sciences and the Law, 21,* 713-736.

Frick, P. J., Lilienfeld, S. O., Ellis, M., Loney, B., & Silverthorn, P. (1999). The association between anxiety and psychopathy dimensions in children. *Journal of Abnormal Child*

Psychology, 27, 383-392.

Frick, P., O'Brien, B., Wotton, J., & McBurnett, K. (1994). Psychopathy and conduct problems in children. *Journal of Abnormal Psychology, 103,* 700-707.

Forth, A. E., Kosson, D. S., & Hare, R. D. (2003*). Hare Psychopathy Checklist: Youth Version*. Toronto, Ontario: Multi-Health Systems.

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. E. (1996). A meta-analysis of the predictors of adult offender recidivism: What works! *Criminology, 34,* 401-433.

Grisso, T., & Appelbaum, P. (1992). Is it unethical to offer predictions of future violent behavior? *Law and Human Behavior, 16,* 621-633.

Grisso, T., & Tomkins, A. J. (1996). Communicating violence risk assessments. *American Psychologist, 51,* 928-930.

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*(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., Williams, K. R., Tolan, P. H., & Modecki, K. L. (2008). Theoretical and research advances in understanding the causes of juvenile offending. In R. D. Hoge, N. Guerra, & P. Boxer (Eds.), *Treating the juvenile offender* (pp. 33-53). New York: Guilford Press.

Guy, L. S. (2008). *Performance indicators of the structured professional judgment approach for assessing risk for violence to others: A meta-analytic survey*. Doctoral dissertation, Simon Fraser University, Burnaby, BC.

Hanson, R. K., & Morton-Bourgon, K. E. (2009). The accuracy of recidivism risk assessments for sexual offenders: A meta-analysis. *Psychological Assessment, 21*, 1-21.

Hare, R. D. (1991). *Manual for the Hare Psychopathy Checklist–Revised*. Toronto: Multi-Health Systems.

Hare, R. D. (2003). *Manual for the Hare Psychopathy Checklist – Revised (2nd ed.)*. Toronto: Multi-Health Systems.

Harris, G., Rice, M., & Cormier, C. (2002). Prospective replication of the Violence Risk Appraisal Guide in predicting violent recidivism among forensic patients. *Law and Human Behavior, 26*(4), 377-394.

Harris, G., Rice, M., & Quinsey, V. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior, 20*, 315-335.

Hart, S. D. (2003). Actuarial risk assessment: commentary on Berlin et. al. *Sexual Abuse: A*

Heilbrun, K. (1992). The role of psychological testing in forensic assessment. *Law and Human Behavior, 16*, 257-272.

Heilbrun, K. (2010). *Violence risk assessment in adults*. Oxford, UK: Oxford University Press.

Heilbrun, K., Grisso, T., & Goldstein, A. (2008). *Foundations of forensic mental health assessment*. New York: Oxford University Press.

Hemphill, J. F., Hare, R. D., & Wong, S. (1998). Psychopathy and recidivism: A review. Legal and Criminological Psychology, 3, 139-170.

Hoge, R. D. (2008). Assessment in juvenile justice systems. In R. D. Hoge, N. Guerra, & P. Boxer (Eds.), *Treating the juvenile offender* (pp. 54-75). New York: Guilford.

Hoge, R. D. (2012). Forensic assessments of juveniles: Practice and legal considerations. *Criminal Justice and Behavior, 39*, 1255-1270.

Hoge, R. D., & Andrews, D. A. (2006). *Youth Level of Service/Case Management Inventory: User's manual.* North Tonawanda, NY: Multi-Health Systems.

Hoge, R. D., & Andrews, D. A. (2010). *Evaluation of risk for violence in juveniles*. New York: Oxford University Press.Kazdin A. (2000). *Psychotherapy for children and adolescents: Directions for research and practice.* New York: Oxford University Press.

Hoge, R. D., Vincent, G., & Guy, L. (2012). Predictions and risk/needs assessments. In R. Loeber & D. P. Farrington (Eds.), *From juvenile delinquency to adult crime: Criminal careers, justice policy, and prevention* (pp. 150-183). New York: Oxford.

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.

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 & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 86-105). Thousand Oaks, CA: Sage.

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Sage Publications, Inc.

Litwack, T. R. (2001). Actuarial versus clinical assessments of dangerousness. *Psychology, Public Policy, and Law, 7*, 409-443.

Loeber, R. (1990). Development and risk factors of juvenile antisocial behavior and delinquency. *Clinical Psychology Review, 10*, 1 - 41.

Loeber, R., & Farrington, D. P. (2012). *From juvenile delinquency to adult crime: Criminal careers, justice policy, and prevention*. New York: Oxford.

Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & White, H. R. (2008). *Violence and serious theft: Development and prediction from childhood to adulthood*. Mahwah, NJ: Erlbaum.

Loeber, R., & Stouthamer-Loeber, M. (1998). Development of juvenile aggression and behavior: Some common misconceptions and controversies. *American Psychologist, 53*, 242-259.

Loeber, R., & Stouthamer-Loeber, M. (1987). Prediction. In H. C. Quay (Ed.), *Handbook of Juvenile Delinquency* (pp. 325-382). New York: Wiley.

Loney, B., Taylor, J., Butler, M., & Iacono, W. (2007). Adolescent psychopathy features: 6-Year temporal stability and the prediction of externalizing symptoms during the transition to adulthood. *Aggressive Behavior, 33,* 242-252.

Loeber, R., Slot, N. W., & Stouthamer-Loeber, M. (2006). A three dimensional, cumulative developmental model of serious delinquency. In P. O. H. Wilkstrom & R. Sampson (Eds.), *The explanation of crime: Contexts and mechanisms* (pp. 153-194). Cambridge, UK: Cambridge University Press.

Loeber, R., & Stouthamer-Loeber, M. (1987). Prediction. In H. C. Quay (Ed.), *Handbook of Delinquency* (pp. 325-382). New York: Wiley.

Loney, B., Taylor, J., Butler, M., & Iacono, W. (2007). Adolescent psychopathy features: 6-Year temporal stability and the prediction of externalizing symptoms during the transition to adulthood. *Aggressive Behavior, 33,* 242-252.

Lynam, D. (1996). Early identification of chronic offenders: Who is the fledgling psychopath. *Psychological Bulletin 120,* 209-234.

Lynam, D.R, Caspi, A, Moffitt, T.E., Loeber, R, & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology, 116,* 155-165.

Melton, G., Petrila, J., Poythress, N., & Slobogin, C. (2007). *Psychological evaluations for the courts: A handbook for mental health professionals and lawyers* (*3rd edition*). New York: Guilford Press.

Moffitt, T. E. (2003). Life-course-persistent and adolescence-limited antisocial behavior: A 10-year research review and research agenda. In B. B. Lahey, T. E. Moffitt, & A. Caspi (Eds.), *Causes of conduct disorder and juvenile delinquency* (pp. 49-75). New York: Guilford.

Moffitt, T. E., & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology, 13*(2), 355-375.

Monahan, J. (1996). Violence prediction: The last 20 years and the next 20 years. *Criminal Justice and Behavior, 23,* 107-120.

Monahan, J. (2008). Structured risk assessment of violence. In R. I. Simon, & K. Tardiff (Eds.), *Textbook of Violence Assessment and Management* (pp. 17-33). Arlington, VA: American Psychiatric Publishing.

Monahan, J., Steadman, H. J., Robbins, P. C., Appelbaum, P., Banks, S., & Grisso, T., et al. (2005). An actuarial model of violence risk assessment for persons with mental disorders. *Psychiatric Services, 56,* 810-815.

Mulvey, E. P. (2005). Risk Assessment in Juvenile Justice Policy and Practice. In K. Heilbrun, N. E. Sevin Goldstein, & R. E. Redding (Eds.), *Juvenile delinquency: Prevention, assessment, and intervention* (pp. 209-231). New York: Oxford University Press.

Nuffield, J. (1982). *Parole decision-making in Canada: Research towards decision guidelines*. Ottawa, Ontario: Supply and Services Canada.

O'Connor, T. G., & Rutter, M. (1996). Risk mechanisms in development: Some conceptual and methodological considerations.*Developmental Psychology, 32,* 787-795.

Odgers, C., Vincent, G. M., & Corrado, R. R. (2002). A preliminary conceptual framework for the prevention and management of multi-problem youth. In R. R. Corrado, R. Roesch, S. D. Hart, & J. K. (Eds.), *Multi-problem violent youth: A foundation for comparative research on needs, interventions and outcomes* (pp. 302-329). Amsterdam, Netherlands: IOS Press.

Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2009). Risk assessment with young offenders: A meta-analysis of three assessment measures. Criminal Justice and Behavior, 36, 329-353.

Patterson G.R., Forgatch M.S., Yoerger K.L., & Stoolmiller M. (1998). Variables that initiate and maintain an early-onset trajectory of offending. *Developmental Psychopathology, 10*, 531-547.

Piquero, A. R., Farrington, D. P., & Blumstein, A. (2007). *Key issues in criminal career research: New analyses of the Cambridge Study in delinquent development*. Cambridge, UK: Cambridge University Press.

Piquero, A. R., Hawkins, D., & Kazemian, L. (2012). Criminal career patterns. In R. Loeber & D. P. Farrington (Eds.), *From juvenile delinquency to adult crime: Criminal careers, justice policy, and prevention* (pp. 14-46). New York: Oxford.

Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (1998). *Violent offenders: Appraising and managing risk*. Washington, DC: American Psychological Association.

Robins L. N. (1974). Antisocial behavior disturbances of childhood: Prevalence, prognosis, and prospects. In E. J. Anthony & C. Koupernik (Eds.), *The child in his family: Children at psychiatric risk.* Oxford, England: John Wiley & Sons.

Rubin, B. (1972). Prediction of dangerousness in mentally ill criminals. *Archives of General Psychiatry, 27,* 397-407.

Rutter, M., Giller, H., & Hagell, A. (1998). *Antisocial behavior by young people*. Cambridge, UK: Cambridge University Press.

Sampson, R. J., & Laub, J. H. (2003). A life-course view of the development of crime. *Annals of the American Academy of Political and Social Science ,602,* 12-45.

Schwalbe, C. S. (2007a). Risk assessment for juvenile justice: A meta-analysis. *Law and Human Behavior, 31,* 449-462.

Schwalbe, C. S. (2007b). A meta-analysis of juvenile justice risk assessment instruments: Predictive validity by gender. *Criminal Justice and Behavior, 35,* 1367-1381.

Schwalbe, C. S., Fraser, M. W., Day, S. H., & Arnold, E. (2004). North Carolina Assessment of Risk (NCAR): Reliability and Predictive Validity with Juvenile Offenders. *Journal of Offender Rehabilitation, 40,* 1-22.

Schwalbe, C. S., Fraser, M. W., Day, S. H., & Cooley, V. (2006). Classifying juvenile offenders according to risk of recidivism: Predictive validity, race/ethnicity, and gender. *Criminal Justice and Behavior, 33,* 305-324.

Teplin, L, Abram K, McClelland, G, Dulcan ,M, & Mericle A. (2002). Psychiatric disorders in youth and juvenile detention. *Archives of General Psychiatry*, 59, 1133-1143.

Thornberry, T. P. (2005). 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., & Krohn, M. D. (2003). (Eds.). *Taking stock of delinquency: An overview of findings from contemporary longitudinal studies*. New York: Kluwer/Plenum.

Vincent, G. M., Fusco, S. L., Gershenson, B. G. & Guy, L. S., (2010). *Secondary Analyses for the Prediction and Assessment of Early Adult Criminal Activity*. Unpublished report to the National Institute of Justice.

Vincent, G. M., Grisso, T., Terry, A., Banks, S. (2008). Gender and Race Differences in Mental Health Symptoms in Juvenile Justice. *Journal of American Academy of Child and Adolescent Psychiatry, 47,* 282-290.

Vincent, G. M., Terry, A., & Maney, S. (2009). Risk/Needs tools for antisocial behavior and violence among youthful populations:. In J. Andrade (Ed.) *Handbook of Violence Risk Assessment and Treatment for Forensic Mental Health Practitioners* (pp. 337-424). New York: Springer.

Walters, G. (2006). Risk-appraisal versus self-report in the prediction of criminal justice outcomes: A meta-analysis. *Criminal Justice and Behavior, 33,* 279-304.

Washington State Institute for Public Policy. (March, 2004). *Assessing risk for re-offense: Validating the Washington State Juvenile Court Assessment* (Document No. 04-03-1201). Seattle, WA: Author.

Wasserman, G,, McReynolds, L,, Lucas, C,, Fisher, P,, & Santos L. (2002). The Voice DISC-IV with incarcerated male youths: Prevalence of disorder. *Journal of the American Academy of Child & Adolescent Psychiatry,* 41, 314-321.

Webster, C. D., Douglas, K., Eaves, D. & Hart, S. (1997). *HCR-20: Assessing risk for violence*, Version 2. Burnaby, BC: Simon Fraser University.