

Examining the Science and Practice of Violence Risk Assessment with Female Adolescents

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While the field of violence risk assessment among adult males has progressed rapidly, several questions remain with respect to the application of forensic risk assessment tools within other populations. In this article, we consider the empirical evidence for the assessment, prediction, and management of violence in adolescent girls. We discuss limitations of generalizing violence risk assessment findings from other populations to adolescent girls and point out areas where there is little or no empirical foundation. Critical issues that must be addressed in research prior to the adoption or rejection of such instruments are delineated. Finally, we provide practice guidelines for clinicians currently involved with adolescent females within risk assessment contexts.

KEY WORDS: adolescent females; psychopathy; risk assessment; violence.

Over the two past decades, significant advances have been made in the field of violence risk assessment (see Borum, 1996; Douglas & Ogloff, 2003; Monahan & Steadman, 1994). A plethora of risk assessment instruments have been developed and tested widely among adult male forensic populations (see, e.g., Hare, 1991; Harris, Rice, & Quinsey, 1993; Webster, Douglas, Eaves, & Hart, 1997). Research to date indicates that, when consistently applied, structured violence risk assessment systems increase case management efficiency and allow for predictions of future violence that surpass those made based on unstructured clinical judgment (Kropp, Hart, Webster, & Eaves, 1999; Monahan, Steadman, Silver, Appelbaum, Robbins, Mulvey, et. al., 2001; Otto, 2000). As such, structured assessment tools are now accepted as an important part of violence risk assessments, and are considered by some to be a *necessary* component (Gacono, 2000; Nicholls, Hemphill, Boer, Kropp, & Zapf, 2001).

While the field of violence risk assessment among adult males has progressed rapidly, several questions remain with respect to the application of forensic risk

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assessment tools within other populations. Although researchers have begun to test the utility of violence risk assessment tools with male adolescents (Edens, Skeem, Cruise, & Cauffman, 2001; Forth, 1995; Forth & Mailloux, 2000; Vincent, 2002) and adult women (Forth, 1996; Rutherford, Cacciola, Alterman, & McKay, 1996; Salekin, Rogers, Ustad, & Sewell, 1998), virtually no studies have focused specifically on female adolescents.

Recently, female adolescents have emerged at the forefront of violence-related research and policy agendas due to increases in official violent offending (FBI, 2002; Puzzanchera, Stahl, Finnegan, Tierney, & Snyder, 2003; Statistics Canada, 2003), self-reported violent behaviors (U.S. Department of Health and Human Services, 2001), and entries into juvenile detention facilities (Porter, 2000). Consequently, demands to apply existing risk assessment tools to, and develop gender-specific instruments for, populations of female youth have increased. Unfortunately, empirically validated assessment tools for this population have not met the growing demands.

In this article, we consider the empirical evidence for the assessment, prediction, and case management of violence in adolescent girls. We discuss limitations of generalizing risk assessment findings from other populations to adolescent girls, and point out areas where there is little or no empirical foundation. Finally, we delineate critical issues that must be addressed in research prior to the adoption or rejection of such instruments, and we provide practice guidelines for the clinicians currently involved with this population.

EMPIRICAL SUPPORT FOR THE PREDICTION AND MANAGEMENT OF VIOLENCE IN ADOLESCENT GIRLS

The identification of factors that reliably predict future violence is essential to risk assessment and case management. Indeed, the goals of prediction and case management go hand in hand—one relies on the other. In the case of risk assessment involving adolescent girls, there is a growing body of literature, which suggests that the risk factors, causal mechanisms, and manifestation of violence may not fit the general models that have been designed for boys and men. The implication, therefore, is that the interrelated goals of risk prediction and risk management may, at best, be difficult to reach given the current state of knowledge and practice.

We next consider three questions: (1) what are the unique challenges of predicting violence in girls?, (2) can research on other populations be generalized to prediction of violence in adolescent girls?, and (3) what, if anything, can risk assessment models offer in managing violence among adolescent girls?

What Are the Unique Challenges of Predicting Violence in Girls?

A review of the research related to violence in adolescent females quickly reveals that traditional violence prediction tools may be of limited value when applied to adolescent female offenders. Several factors contribute to this conclusion.

Low Base Rate of Traditional Forms of Violence Among Females

Although female adolescents are the only population that is continuing to experience consistent increases in violent offending, violent crime statistics are still dominated by males. In fact, across both time and context, males are consistently found to be far more likely than females to engage in serious physical forms of violence (Archer & McDaniel, 1995; Boritch, 1997; Dell & Boe, 1998; Savioe, 2000). For example, in 2000, the violent crime index offense arrest rate (murder, robbery, aggravated assault) among female youth was approximately 11.7 charges per 10,000, and for simple assault, the rate was 46.4 charges per 10,000 (FBI, 2002). By comparison, the rate of violence among adolescent boys was 49.2 charges for violent crime index offenses and 96.7 charges for simple assault.

Even if we consider self-report research that suggests female and male rates of violence are more equivalent, girls still linger behind boys with respect to the absolute prevalence, frequency, and severity of their violent behavior. Although the male-to-female ratio for self-reported violence is decreasing, boys still outnumber girls by 3.5 to 1 (US Department of Health and Human Services, 2001). Girls are also less likely to report involvement in serious forms of violence, such as major assault, robbery, and weapon carrying, and tend to engage in violent acts at a lower frequency than their male counterparts (Moffitt, Caspi, Rutter & Silva, 2001; Snyder, & Sickmund, 1999; Webster, Gainer, & Champion, 1993). While the low base rate of violence in general creates challenges for accurate prediction, the extremely low numbers of girls who go on to commit the forms of violence that risk instruments are designed to predict is especially problematic. In fact, being female is typically considered a protective factor and is given a negative weighting within actuarial violence assessment models.

It is important to note that the difficulties in predicting future violence among females cannot be attributed solely to the problem of a lower base rate. There are other problems in clinical judgment that seem to limit accurate prediction of violence in women. For example, within civil psychiatric and inpatient settings, where the likelihood of future violence is typically more equivalent across males and females (Lidz, Mulvey & Gardner, 1993; Newhill, Mulvey & Lidz, 1995; Robbins, Monahan & Silver, 2003; Stueve & Link, 1998) and clinicians generally possess a modest ability to predict future violence among men (Borum, 1996), clinicians have performed poorly when attempting to predict future violence among women. Specifically, they have tended to underestimate the risk of women's future violence (Lidz et al., 1993; McNiel & Binder, 1995; Nicholls, Ogloff & Ledwidge, 2003).

Gender Differences in the Form and Target of Violent Behavior

A growing body of research suggests that the expression of violence among females may differ both quantitatively and qualitatively from that of their male counterparts. For example, females are less likely than males to engage in physical forms of aggression, and more likely to engage in relationally as opposed to physically aggressive acts (Cote, Vallancourt, Farhat, & Tremblay, 2002; Crick & Grotpeter, 1995; Everett & Price, 1995). Nonetheless, in the context of intimate

relationships, adult female aggression can escalate to include physical acts of violence, especially assaults against a partner or family member and are less likely to cause injuries that result in medical attention (Newhill et al., 1995; Shaw & Dubois, 1995). It is quite possible that these types of violent acts by females are less likely to be reported than are violent acts perpetrated in public contexts and against strangers (Straus & Gelles, 1986). Thus, the heavy reliance on official measures of violent offending does not allow for the construction of adequate prediction models for alternative, yet equally harmful, forms of violence in which females are more likely to be involved (e.g., violence against partners, children, and other family members).

Gender Differences in Developmental Course

One of the most robust predictors of future violent offending is the presence of a prior history of involvement in aggressive and violent behavior. Specifically, an early age of onset for aggressive and antisocial acts ($r = .21-.45$) and a prior history of violence (1.9–6.3 odds ratio) demonstrate a strong relationship to future violence among males as measured by both official records and self-report data (see Lipsey & Derzon, 1998). The strength of these risk factors within female populations, however, is unclear. For instance, a number of longitudinal studies show no relationship between previous offending and future violence, or in some cases a decreased risk of future violence, for females who begin offending prior to age 15 (Stattin & Magnusson, 1989; White, 1992).

The picture of violence among adolescent females is further complicated by the possibility that the developmental course of aggression may differ for females compared to males (Silverthorn & Frick, 1999). It is well documented that the majority of females who engage in antisocial and aggressive behavior during adolescence disappear from the radar when traditional violence measures are used (Lanctot, 2002), with women being more likely to engage in violence within the home and against family members (Estroff & Zimmer, 1994; Robbins et al., 2003). While many of these women are at a high risk for a myriad of other psychological, physical, and social problems (Moffitt et al., 2001), it is unlikely that they will commit a violent act that will be detected by official arrest statistics. Thus, prediction models used to construct the majority of actuarial tools may not include the best linear combination of risk factors for the small number of adolescent females who go on to engage in violence.

Lack of Gender-Specific and Empirically Based Prediction Models

Applying risk prediction tools to female adolescents is also problematic because the risk factors that are selected for inclusion in the majority of existing tools have been chosen based on their robustness as predictors in: (a) retrospective studies of adult male offenders (Hare, 1991; Harris, Rice & Cormier, 1991), (b) large longitudinal studies from juvenile justice that have focused primarily on male offending, or (c) studies involving male and female youth where estimates of the

relationships were neither calculated nor reported separately from the results presented for males.

In sum, several interrelated issues create significant challenges in the prediction of violence in adolescent girls. Together, these factors are likely to reduce the predictive accuracy of current assessment tools. Unfortunately, it is not even possible to determine the extent of the problem because there is simply insufficient research. We next turn our attention to research on related populations and examine whether it is reasonable to generalize findings from these groups to support the practice of risk assessment in female adolescents.

What Does Research with Adult Women Tell Us About the Prediction of Violence Risk Among Adolescent Females?

Experts in the risk assessment field have stated that male-based instruments are likely to function similarly within female populations (Hare, 1991; Webster, 1999). The empirical data to support these claims, however, are equivocal at best. While researchers have evaluated a number of different risk instruments with women, (e.g., the *Violence Risk Appraisal Guide* [VRAG] Harris et al, 1993, and the HCR-20, Webster et al., 1997) the *Psychopathy Checklist-Revised* (PCL-R; Hare, 1991) is currently viewed as the gold standard in violence risk assessment. As such, we focus our review primary on psychopathy related research.

A number of researchers have cited the postdictive power the PCL-R as evidence that the instrument applies equally well within populations of adult women (see Rutherford et al., 1996; Weiler & Widom, 1996). However, the degree to which these studies can be seen as providing support for the PCL-R as a risk assessment instrument is highly compromised by the fact that criminal history is specifically used to form a number of PCL item ratings (e.g., early behavioral problems, serious criminal offending, criminal versatility, revocation of conditional release) and carries significant weight in others (e.g., lack of remorse, impulsivity, irresponsibility, poor anger control). Predictive rather than postdictive studies are required and results are much less favorable when researchers attempt to predict *future* offending among women (Salekin et al., 1998).

Among the only *prospective* examinations of structured risk assessment with women, Salekin and colleagues (Salekin, Rogers, & Sewell, 1997; Salekin et al., 1998) found that the classification accuracy of the PCL-R was “moderate to poor.” In addition, in one of the most comprehensive reviews of the empirical research on psychopathy and women, Vitale and Newman (2001) concluded that “if clinicians are using the PCL-R for the sole purpose of predicting specific outcomes for any particular women in these areas [predicting criminal recidivism, predicting institutional violence, planning and implementing treatments and interventions], they would be doing so without empirical evidence or the predictive power of the PCL-R in such domains” (p. 128). It should be noted, however, that this review relied heavily on the research by Salekin and colleagues that was comprised of a primarily African American sample, yet ethnic differences were not addressed. Even if one were to factor in these methodological considerations, however, it would be

difficult at this point to justify the use of the PCL-R with women for predictive purposes.

Other researchers have argued that a greater understanding of the differences that exist between male and female populations is needed to increase the accuracy of future predictions of violent behavior (Uggen & Kruttschnitt, 1998). Brennan and Austin (1997) charge that gender neutral classification tools tend to overclassify females, while others assert that the bias functions in the opposite direction, producing an underprediction in females (Coontz, Lidz, & Mulvey, 1994). Coulson, Flacqua, Nutbrown, Giulekas, and Cudjoe (1996) concluded that current risk cut-off thresholds that have been normed on samples of men (e.g., *Level of Service Inventory*) are not appropriate for female offenders. In addition, a number of leading authorities in the risk assessment field have stated that factors other than those included in current risk assessment schemes may be necessary to consider in the prediction of violence among women (Monahan, 1996).

The problems associated with predicting violence risk in women are not limited to situations where violence risk assessment instruments and guides are used. Rather, there is a convincing body of research on unstructured clinical judgment which demonstrates that this is part of a more general problem. In one of the most definitive studies, Lidz et al. (1993) found that although clinicians were able to predict with a moderate degree of accuracy whether male civil psychiatric patients would be involved in a violent incident, they were no better than chance when predicting future violence among females. Even though the base rate of future violence was higher among the females versus males in this sample (49% vs. 42%, respectively) clinicians were only able to predict violence in 22% of the females versus 45% of the males. Based on these findings, the authors suggest that the cues considered by clinicians in cases involving women may be inaccurate. A further examination of the judgment processes employed by clinicians suggested that clinical judgments of future violence risk are, in part, dependent on cultural beliefs regarding appropriate gender role behavior, with clinicians being less likely to address the topic of violence with female versus male patients (Coontz et al., 1994). Very little is known, however, regarding why clinicians perform more poorly when evaluating women within an unstructured context. It has been hypothesized that gender-based stereotypes such as the general tendency to perceive females as less threatening and aggressive (Bettencourt & Miller, 1996) and more "mad" than "bad" may have an indirect impact on the assessment process.

In sum, the majority of the research on violence prediction in adult women is extremely limited and the findings are unclear at best. Although many scholars have taken the position that it would be unlikely that current male-based instruments have no application to women (see Hare, 1991; Webster, 1999), the empirical body of research necessary to support the use of these tools for purposes other than research does not exist. In fact, the problems in the field are of such magnitude that researchers have clearly stated that instruments, such as the PCL-R, should not be used for predictive purposes with adult female samples although they recommend continued use of the PCL-R as a research instrument in its current form (Vitale & Newman, 2001). If any generalization can be made downward to adolescent females at all, it would be to view current assessment

instruments and the prediction of violence in adolescent girls with extreme caution.

What Does Research with Boys Tell Us About the Prediction of Risk Among Adolescent Females?

Even if research on adult women offers little basis for downward generalization to adolescent girls, it is possible that findings based on adolescent male samples could be generalized laterally to girls. A number of studies using the *Psychopathy Checklist: Youth Version* (PCL:YV; Forth, Kosson, & Hare, 2003) have reported similar psychometric properties to the PCL-R (Hare, 1991) and found that male juveniles scoring high on the PCL:YV are similar to adult male psychopaths with respect both to psychological correlates and behavioral characteristics (see Vincent & Hart, 2002, for a review). The PCL-YV has also demonstrated predictive utility within short-term prospective studies of male adolescents (Forth, Hart, & Hare, 1990; Ridenour, Marchant, & Dean, 2001). However, a review of published PCL-YV studies indicates that only 6 of the 34 studies completed to date have included females, with sample sizes ranging from 11 to 80 females (Forth et al., 2003). Given the lack of empirical data, it is difficult to assess the psychometric properties of the PCL-YV when applied to females.

Although significantly more research has been done with boys, and psychopathy is considered the gold standard in the prediction of both violent and general criminal recidivism in adult males (Hare, 1991; Hare, McPherson, & Forth, 1988; Harris et al., 1991), there is not enough evidence to establish whether this disorder exists or can be assessed prior to early adulthood (Vincent & Hart, 2002). For example, Vincent (2002) reported differential item functioning between male adolescents and adults on interpersonal and behavioral items of the PCL-R and PCL-YV. In this case, adolescents who were rated as psychopathic needed higher levels of the latent trait of psychopathy in order to receive ratings as high as adults on items such as irresponsibility and impulsivity. These findings raise the fundamental question of whether these instruments are measuring the same thing, in this case psychopathy, across adult and adolescent male populations.

Even if we interpret existing research as providing some degree of evidence to support the use of violence risk prediction in adolescent males, it is important to keep in mind that there are significant concerns regarding the assessment of risk in general, and psychopathy in particular, during adolescence (for reviews, see Edens et al., 2001; Vincent & Hart, 2002). Specifically, behaviors that are normative during adolescence, such as impulsivity, may appear pathological from a risk assessment perspective (Seagrave & Grisso, 2002). For example, although the majority of youth engage in antisocial behavior during adolescence, this behavior is largely transient and desists as youths enter young adulthood (Cauffman & Steinberg, 2000; Farrington, 1989; Moffitt, 1993). The normative fluctuations that occur in adolescence raise the question of whether the presentation of disorders and traits may vary significantly with the adolescents' stage of emotional and psychosocial development.

The instability that characterizes adolescence is particularly important in light of the *fundamental assumption* that many of the traits that comprise risk assessment

instruments are stable within the individual and can be assessed reliably over time. At the heart of the issue is the question of whether adolescent personality development has stabilized sufficiently to extract the information required to conduct such evaluations, and at present we lack a definitive answer to this question. As such, adolescents have been described as moving targets that are difficult to assess based on single observations (Grisso, 1998).

Should We Overlook Developmental Concerns and Place More Confidence in Research on the Assessment of Psychopathy and Violence Prediction in Adolescent Males?

If we were to place more emphasis on the assessment of psychopathy among adolescent males, this would not necessarily mean that research on this population could be wholly generalized to the prediction of violence in adolescent girls. As previously noted, very little is known regarding the normative developmental course of antisocial and aggressive behavior among girls. Although Moffitt et al. (2001) argue that the Life Course Persistent (LCP) versus Adolescent Limited (AL) taxonomy applies equally well to males and females, research examining gender differences is quite limited and what exists suggests that few females follow the LCP trajectory. For example, only 6 of the approximately 450 females (1%) from the Dunedin Longitudinal Study (Moffitt et al., 2001) were identified as LCP offenders, whereas 78 (18%) were identified as AL. Among males in the sample, 10% of (47) were identified as LCP offenders, and an additional 122 (26%) met the criteria for the AL Pathway. Consistent with this finding, the gender gap in rates of Conduct Disorder (CD) is greater in childhood than in adolescence (for reviews, see Cohen et al., 1993; Lahey et al., 2000; Moffitt et al., 2001; Zoccolillo, 1993).

The fact that adolescent-onset aggression is more common in girls than is childhood-onset aggression has led some researchers to suggest that the classic distinction between LCP versus AL does not apply to girls (Loeber & Stouthamer-Loeber, 1998; Silverthorn & Frick, 1999). Silverthorn and Frick (1999) propose that the delayed-onset pattern in girls is equivalent to the early-onset pattern in boys in terms of risk markers, stability, and persistence into adulthood. The controversy surrounding the developmental course of aggression among girls is especially relevant within risk assessment research due to the heavy reliance on childhood behaviors as markers of future risk for violence. It is possible that the commonly cited early markers of violence may not exist for girls, or that early risk markers may manifest themselves differently across development among females.

In sum, the current use of risk assessment instruments to predict future violence in adult females and adolescent males is not widely supported. Even if there were greater support within each of these populations, questions still remain as to whether the findings could be generalized downward in terms of age, or laterally in terms of gender. Given the current state of the research, it is clear that the traditional practice of risk assessment for the purpose of violence prediction in adolescent girls is not advisable.

What Can Risk Prediction Models Offer to the Field of Adolescent Female Violence?

Although there is no evidence to support the practice of violence prediction with current instruments *per se*, the literature does confirm that adolescent girls with serious behavioral problems, as reflected in a diagnosis of CD and/or incarceration, are at risk for a variety of poor mental health and social functioning outcomes as they move toward adulthood. For example, in the Dunedin longitudinal study, Moffitt et al. (2001) found that 21-year-old women diagnosed with CD in childhood or adolescence were significantly more likely to show mental health symptoms (anxiety, depression, psychosis, mania, and suicidality), suffer from more medical problems, require social assistance, be victimized by their partners, and perpetrate physical abuse against them in return than were girls not diagnosed with CD. Similar negative outcomes have been found for female juvenile offenders with respect to mental health symptoms of depression, substance abuse, suicidality, as well as social and economic marginalization in young adulthood (Lanctot, 2002; Lewis, Yeager, Cobham-Portorreal, & Klein, 1991).

Given these findings, the social costs of failing to intervene and reduce the risk of violence in forensic populations of adolescent females is likely significant. For example, studies by Robins (1986) verify that girls diagnosed with CD in adolescence went on to be involved in multiple mental health services as young women. Not only does the financial burden of providing social and mental health support increase over time in the absence of intervention, but there is evidence to suggest that the risk for involvement in criminality is even higher in the offspring of mothers than fathers with a criminal history (Tremblay, 1991). As a result, it makes sense to develop instruments to detect risk for deleterious social-emotional and health outcomes even if there is only a small likelihood that these girls will engage in the typical form of violent behavior that is commonly seen in males. Although current research findings do not support assessment and prediction of violence in girls, it seems important that further research and refinement of assessment measures will be undertaken to enhance accuracy to the point that they become valid and useful.

RESEARCH GUIDELINES: GENDER REFINEMENT OF RISK ASSESSMENT INSTRUMENTS

There are a number of tools that have been developed specifically to assess and manage risk among adolescents (for a review, see Office of Juvenile Justice and Delinquency Prevention, 1995). Although some of these have been developed specifically for adolescents (e.g., the Structured Assessment of Violence Risk in Youth [SAVRY]; Borum, Bartel, & Forth, 2002), most were designed for use with adult offenders and are either directly applied or slightly modified for use with adolescents. Developmental considerations have not been factored into the majority of current risk assessment schemes and prospective studies that would support the use of such instruments during this period are lacking. There have been

virtually no attempts to construct tools designed for female populations within forensic settings. In fact, most instruments do not consider gender, and the majority of assessment schemes assume that items apply equally to male and female populations.

The construction of developmentally and gender-sensitive risk management instruments must not only be anchored in research on adolescent development, but it must also take into consideration gender-related factors that are of relevance in understanding the emergence and course of aggressive, violent, and antisocial behavior in girls. These include greater attention to: (a) gender-specific risk and protective factors; (b) psychiatric co-morbidity; (c) social context and relational issues; and (d) gender differences in item sensitivity.

Inclusion of Gender-Specific Risk and Protective Factors

Only recently have researchers begun to empirically assess the form and predictive utility of gender-specific risk factors (Chesney-Lind & Sheldon, 1998; Levene, Augimeri, Pepler, Walsh, Webster, & Koegl, 2001; Reitsma-Street, 1999; Totten, 2000). Cunningham, Baker, Mazaheri, Ashbourne, VanBunschot, and Currie (2000) have argued that although adolescent women share several risk markers with their male counterparts, there are a number of important risk factors, such as a history of attempted suicide and depression, that are not generally considered in most instruments. For example, Borst and Noam (1993) documented distinct developmental pathways and correlates (e.g., aggression, psychopathology) of suicidal behaviors among a sample of young female psychiatric patients ($n = 139$). Suicidal behaviors may be considered as a marker for distinct types of psychological maladjustment and as a risk factor for future violence towards self and others.

Our recent review of the literature (Odgers & Moretti, 2002) provides little empirical evidence to support the need for gender-specific risk factors among normative samples of children and youth (see also Leschied, Cummings, Van Brunschot, Cunningham, & Saunders, 2000). Instead, the primary message throughout these studies is the remarkable level of similarity with respect to the risk factors that are related to violence among boys and girls (e.g., antisocial peers, academic problems, and antisocial parental behavior). Differences that did exist included higher rates of sexual abuse and depression for females. Clinical experience with forensic populations, however, presents a very different picture with respect to the potential importance of gender-specific risk domains and unique nonlinear combinations of risk factors in explaining and managing violence among high-risk girls.

Data from juvenile justice centers indicate that incarcerated girls are more likely than boys to have a broad array of co-occurring mental health problems (e.g., high rates of suicidal ideation, substance abuse, depression, posttraumatic stress disorder [PTSD], and suicide attempts); be exposed to more severe levels of victimization and maltreatment; experience high levels of distress and preoccupation related to their involvement in abusive and highly conflictual relationships, and come from homes that are characterized by high levels of dysfunction (Bergsmann, 1989; Lewis

et al., 1991; Moretti, Holland, & McKay, 2001; Odgers & Moretti, 2002; Rosenbaum, 1989; Viale-Val & Sylvester, 1993). Females within juvenile justice settings are also more likely to be from a minority population and experience other forms of economic and social marginalization (Chesney-Lind & Sheldon, 1998; Corrado, Odgers, & Cohen, 2001).

Clinically, the most salient risk factors for girls relate to their abuse history and the high levels of relationship dysfunction. Although the majority of studies relying on normative populations have *not* shown that aggressive girls and boys differ in exposure to such risk factors as physical maltreatment (Moffitt et al., 2001; Pepler & Sedighdeilami, 1998), and only a weak relationship exists between exposure to abuse and later violence (Lipsey & Derzon, 1998), research conducted within forensic and clinical samples consistently shows that, compared to boys, girls in these populations are significantly more likely to have experienced severe victimization, particularly sexual abuse (Bergsmann, 1989; Corrado et al., 2001; Rivera & Widom, 1990; U.S. Bureau of Justice Statistics, 1997; Viale-Val & Sylvester, 1993). The impact of abuse likely depends on the availability of other supports to children as well as the duration and severity of abusive experiences. Thus, it is important for instruments to go beyond the mere recording of exposure to maltreatment and to more thoroughly assess the type, severity, and duration of abuse, as well as variables such as the relationship to the perpetrator and availability of support. Greater attention to abuse experiences may be helpful in terms of developing management strategies including specific forms of intervention.

It is also the case that current risk assessment instruments could better predict adult outcomes for adolescent girls if they took into account factors that are associated with a *decreased* probability of violence as well. Careful examination of the ways girls are socialized could offer important clues as to why the majority of girls do *not* engage in physical forms of violence. For example, in studies of normative populations, researchers have found that mothers are more likely to discuss others' feelings with their young daughters than their sons, and by age two girls are more likely to talk about feelings than are boys (Dunn, Bretherton, & Munn, 1987). Parents also use more induction techniques with their daughters than their sons to encourage them to consider the feelings of others, and girls are more likely than boys to feel bad if they act aggressively toward others (Boldizar, Perry & Perry, 1989; Cross & Madson, 1997). Although female gendered socialization may increase risk in girls for internalizing disorders (see Moretti & Higgins, 1999; Moretti, Rein & Weibe, 1998), it may provide protection against the development of overt forms of aggressive and violent behavior. To the extent that girls are socialized during early childhood in this way they may be less likely to become involved in overt aggressive and violent behavior during childhood, and more likely to desist in such behavior if it arises during adolescence. It is also likely that socialization practices that are more typically observed in the parenting of girls could potentially provide protection against the development of aggression and violence in boys. On the other hand, traditional forms of female socialization may lead to a reliance on social and relational forms of aggressive behavior. Thus, it is necessary to understand the tradeoffs of gendered socialization in determining which aspects are most likely to contribute to healthy development.

Co-morbidity Issues

Within adult research, the co-morbidity of mental disorders has been cited as a threat to the validity of current risk assessment schemes (Douglas & Webster, 1999) as well as an important consideration in the prediction of future violence (Monahan et al., 2001). Co-morbidity is often viewed as an impediment to research due to questions surrounding the distinctiveness of disorders and diagnostic taxonomy. It is often difficult, for example, to identify the source of multiple symptom patterns and to predict the interactive effect of co-occurring disorders on future behavior. Despite these challenges, the most definitive research in this area has highlighted the importance of considering co-morbid disorders when evaluating risk for future violence. In the MacArthur Risk Assessment Study, Monahan et al. (2001) found that violence committed by people discharged from a mental hospital was very similar to violence committed by other people living in their communities; however, the primary difference was that violence tended to be higher among those with a co-occurring substance abuse.

With respect to adolescents, our current lack of understanding regarding the developmental course and manifestation of co-morbid disorders presents unique challenges for assessments. The precise estimate of mental disorders among youth within the juvenile justice system varies depending on the assessment tool used. For example, Otto, Greenstein, Johnson & Friedman (1992) reported a prevalence rate of 20% among juvenile offenders when only serious mental disorders were included, while others have reported much higher rates when disorders such as substance abuse and conduct disorder are considered (Kazdin, 2000). Regardless of the measure used, a consistent finding is that girls within forensic populations are more likely than their male counterparts to exhibit co-occurring mental health problems (for a review, see Moretti & Odgers, 2002). For example, Teplin (2003) examined the rates of mental disorder in a juvenile detention sample (657 girls and 1,172 boys) and found that approximately 53% of girls versus 41% of boys had two or more disorders, and of the 20 categories of disorders that they examined girls were more likely than boys to be diagnosed in 16 of them.

Girls within high-risk populations also differ with respect to the types of disorders that they exhibit. Specifically, rates of PTSD, depression, attention-deficit hyperactivity disorder, and substance dependency are higher among girls in juvenile justice and mental health settings than among both normative girls and boys in forensic populations (see Cauffman, Feldman, Waterman & Steiner, 1998; Loeber & Keenan, 1994; Zoccolillo, 1993). For example, Cauffman et al. (1998) found that approximately 60% of incarcerated female juvenile offenders met partial (12%) or full (49%) criteria for PTSD. These rates were significantly higher than those noted for male juvenile delinquents.

In sum, the majority of the research points to higher levels of co-morbidity among adolescent girls within forensic settings, as well as a higher prevalence of certain disorders. Arguably, the mental health status of high-risk girls makes prediction more complex. Even if our understanding of the relationship between co-occurring mental problems and later violence among girls was more advanced, the interaction between multiple disorders and complex symptom patterns makes it difficult to

predict where their individual developmental course will lead. For example, Sroufe (1990) reported a diversity of developmental trajectories even in the presence of the same risk factors. One possibility is that among high-risk adolescent females, who are characterized by higher levels of psychiatric co-morbidity than their male counterparts, development is skewed toward a pathological course. In other words, once these young women cross a certain threshold of risk their probability of a wide range of negative outcomes, including violence, may increase exponentially. Future research is needed, however, in order to support this assertion.

Increased Focus on Relationship Dynamics

As previously noted, the vast majority of adolescent girls who engage in aggressive and violent behavior are involved in various types of abusive relationships in which they are victimized by their caregivers, romantic partners, and peers, and in which they perpetrate violence upon others. For example, female youths are most likely to aggress against family members, romantic partners, and members of their peer group. Aggression can take the form of physical acts perpetrated toward others, or “relational” acts of aggression that function to coerce and control others in interpersonal relationships (Moretti & Odgers, 2002). Researchers in the field of gender and identity development have argued that, compared to boys, girls’ identity development is more contextualized within their close interpersonal relationship (Artz, 1998; Moretti & Higgins, 1999). Consequently, girls may suffer more than boys when their relationships are threatened, and they are more distressed by relational forms of aggression than are boys (Geiger, Zimmer-Gembeck & Crick, 2004; Moretti & Odgers, 2002).

There is also evidence that specific attachment patterns are associated with coercive and aggressive behavior toward others. Allen, Moore, Kuperminc, and Bell (1998) found that preoccupied teens were more likely to engage in delinquent activities, including getting into physical fights and assaulting people, than were secure teens, and their delinquent behavior is more likely to increase between the ages of 16 and 18 years (Allen, Marsh, McFarland, Boykin, Land, Jodl, et al., 2002). Moretti, DaSilva and Holland (2004) have found that preoccupied attachment is more common in adolescent girls than boys diagnosed with CD, and degree of attachment preoccupation is uniquely related to aggressive behavior toward others. This research suggests that aggression among adolescent girls may function as a coercive, albeit dysfunctional, strategy to maintain relationships.

Gender Differences in Item Sensitivity in Assessing Aggression and Violence

There is a growing body of evidence regarding gender differences in the manifestation of violence among females. Qualitative research has provided us with rich descriptions of the ways in which the forms and motivations for aggression among females may differ (Artz, 1998; Chesney-Lind & Sheldon, 1998). Recent quantitative analyses also point to important gender differences when measuring violence among girls. For example, Odgers, Moretti and Pepler (2003) found a different

underlying structure of aggression among high-risk girls as compared to the structure for girls in normative settings and boys from both normative and high-risk settings ($n = 1448$). Here, even when the same instrument was used, the *Youth Self Report* (Achenbach, 1991), a different latent trait of aggression was being measured within high-risk females.

Theoretically, it makes sense that violence may differ in both form and function across gender. Now, empirically, there is evidence which questions the ability of commonly used aggression scales to adequately measure aggression among forensic populations of females. The danger is that if equivalent measurement is *not* obtained across gender, the potential for misinterpreting the limited body of research that does exist is high. At best, results could be misconstrued through the reporting of inaccurate estimates in the size of the relationships between various risk factors and violent outcomes and, at worst, researchers may be reporting the wrong size and direction of the effects. With respect to risk assessment, if the weight of various predictors of aggression are calibrated using the results of studies where the dependent variable (aggression/violence) is not comparable across gender, then it does not make sense to compare the relative weight and importance of risk factors between males and females. Thus, until we are confident that the measurement of aggression is invariant across male and female samples, conclusions regarding the relative importance of various risk factors must remain tentative.

Researchers have also pointed to the greater tendency for females to rely on alternative forms of violence—such as relational and social aggression. Studies have shown that relational forms of aggression may be equally as harmful as overt forms (Crick & Bigbee, 1998; Paquette & Underwood, 1999) and are more common in young women than previously believed (Bjorkqvist & Niemela, 1992; Crick & Grotpeter, 1995; Moretti et al., 2001). The recognition of the level and consequences of relational aggression has the potential to inform risk assessment. First, relational aggression may be considered a marker or precursor to more direct and physical forms of violence, as well as providing the context in which acts of physical violence occur. Second, it is advisable to expand the traditional outcome measure of violence within both basic and applied research settings beyond official acts of recidivism. As previously noted, female youths are unlikely to engage in violence that is detected by the criminal justice system. As such, the expansion of the outcome measure of violence and the use of collateral informants to assess the nature and the extent of the damage that is caused by the violence that these women go on to commit against their children, spouses, and themselves will be crucial in completing the complex picture of the developmental course of aggression among females. Finally, there is a need for qualitative research that examines the phenotypic pattern of violence, specifically the relationship between overt and relational forms of aggression among females.

Learn from Tools Developed for Very Young Aggressive Boys and Girls

The challenge of creating a developmentally appropriate and gender-sensitive risk management tools for girls is sizeable. Although we have access to only a

limited body of research and practice that is related directly to assessment with female adolescents, there are many important points to be gleaned from the research related to very young boys and girls. For example, the *Early Assessment Risk List for Boys (EARL-20B) Version 2* (Augimeri, Koegl, Webster, & Levene, 2001) and the *Early Assessment Risk List for Girls (EARL-21G) Version 1: Consultation Edition* (Levene et al., 2001) are risk assessment devices designed to promote gender-specific assessment of risk of antisocial, aggressive, or violent conduct in young children under 12 years of age. The EARL-21G includes items on maternal caregiver–daughter interaction and sexual development to capture issues that may be of unique relevance to girls. Although a preliminary study of the predictive validity of the EARL-21G in a sample of 67 girls revealed that 6 (34%) of the 18 girls who went on to offend in adolescence were classified in childhood in the high-risk range versus 4 (20%) classified in the low-risk group, this difference was not significant (Levene, Augimeri & Pepler, 2004). These findings suggest that the EARL-G in its current form should not be used for predictive purposes, even though the scale has proven to be of considerable value in tailoring programming for young girls (Pepler, Walsh, & Levene, 2004).

In sum, while there is a need to search for gender-specific factors and tailor assessment practices to girls, we must keep in mind that many risk factors for aggression and violence influence girls and boys similarly. Therefore, building assessment tools from lessons we have learned from boys, while keeping in mind unique gender issues, is likely to be more productive than ignoring past research. At the same time, recent research suggests that even when we try to operationalize violence the same way across males and females, we may be measuring a different construct. Advancements in both qualitative and quantitative research designs are required in order to modify existing violence measures and coding schemes to account for the diverse nature and patterns of violence among females. Greater attention should also be paid to the contextual and relational factors in which violent acts committed by girls are embedded. Again, the primary goal for those who are invested in this process should be managing and reducing violence and other negative outcomes among young women as opposed to prediction in the absence of appropriate programming and treatment options.

PRACTICE GUIDELINES: SHOULD CLINICIANS EVALUATE RISK IN ADOLESCENT GIRLS?

While the previous section provided direction for researchers and the future development of a field that is in its infancy, the key question for mental health and other professionals is whether clinicians should evaluate risk in adolescent girls, and if so, for what purpose. First, our review concludes that the assessment of risk for violence for predictive purposes with adolescent girls is not supported by empirical research. Given this conclusion, such assessments cannot be ethically justified and should be vigorously discouraged. On the other hand, there appears to be value in the use of current risk instruments for research purposes and as an adjunct to other assessment procedures to inform clinical management strategies.

There are several ways in which risk assessment can be used constructively with adolescent girls. First and foremost, the use of these measures helps to bring the issue of female aggression and violence into focus for clinicians who might otherwise tend to ignore such issues. Second, by applying a method of systematic and structured assessment of risk factors, clinicians are more likely to examine comprehensively those factors that are likely to be of relevance to case management. Although we have argued that risk assessment for predictive purposes is not advisable, many of the factors that are embedded in risk assessment instruments are of relevance to guiding case management. Identifying those domains, which are particularly problematic or appear to have contributed to the instigation of violence in the past, can be extremely helpful in developing more precise management strategies. For example, if delinquent peer affiliation is identified as a precursor to acts of aggression and violence, steps should be taken to reduce the opportunities for and interest in delinquent peers. These may include working with the youth, family, and community to identify ways in which at-risk girls can be integrated into prosocial peer contexts, and can develop social, recreational, and vocational skills that provide a foundation for their success in nondelinquent peer groups. Similarly, the systematic identification of substance-use problems in at-risk girls is of particular importance in ensuring that appropriate programming is put into place to address their needs.

In this article, we have pointed the need to consider gender-related factors that may be of unique importance in risk assessment for girls, but which are often not represented in risk assessment instruments, such as the PCL:YV. Among these are exposure to sexual abuse, psychiatric co-morbidity, threat to interpersonal relationships, and insecure attachment. It is advisable that clinicians who pursue risk assessment for the purpose of clinical case management are mindful of these factors in their work with adolescent girls. Not only may this enhance the “fit” of programming to the needs of girls, but it is also of importance in contributing to research on the question of whether a gendered approach to risk assessment is necessary.

Although we believe that risk assessment is valuable for case management of adolescent girls, we caution clinicians to be aware that assessments are sometimes used for unintended purposes. Even though a clinician may engage in risk assessment with a clear appreciation of the limitations of these risk assessment measures in terms of prediction of future incidents and include a clear statement of such limitations in their reports, it is often difficult to control the use of information that appears in psychological reports and records. In our opinion, given the limitations of the field and the potential deleterious consequences of misuse of risk assessment findings, the burden of responsibility must rest on the shoulders of clinicians who undertake such procedures. Every precaution should be taken to ensure that findings are not used inappropriately, and clinicians must be active in voicing their concerns and informing public bodies about the reality of research findings when assessments are inappropriately conducted or used.

We anticipate that the next decade will bring many new insights into risk management and assessment with diverse populations. It is our hope that the models and tools that are developed for assessing and managing violence among young women will evolve alongside the growing body of empirical research. Although current tools must be used with great caution (if at all), there remains a need for empirically sound

and gender-sensitive risk management tools. Thus, the challenge for mental health researchers and clinicians is to proceed with an appreciation of the severe limitations that exist in *both* research and practice and, perhaps more importantly, to allow for alternative ways of approaching violence risk assessment and management with adolescent females.

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