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A PREVENTION-BASED PARADIGM FOR VIOLENCE RISK ASSESSMENT

Clinical and Research Applications

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The rationale for this article was to outline and describe an emerging model of prevention-based violence risk assessment and management and to discuss attendant clinical and research implications. This model draws on structured professional judgment rather than on actuarial prediction or unstructured clinical prediction. Its purpose is to prevent violence through the assessment of relevant violence risk factors and the application of risk management and intervention strategies that flow directly from these factors. The authors discuss the nature of the clinical tasks that stem from the model as well as a four-step validation procedure required to evaluate it.

Violence risk assessment is a clinical task that is required in dozens of legal, quasi-legal, and clinical situations (Lyon, Hart, & Webster, 2001; Shah, 1978). Although the clinical validity and legal tenability of risk assessment has been questioned since its inception,¹ interest and activity in risk assessment has proliferated, not dimin-

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ished. This accrual of attention and scrutiny ultimately has been beneficial, as it has led to progress in the empirical foundation for the clinical endeavor. This state of affairs should, as well, make risk assessment more legally palatable (though see Hart, 2001b; Janus & Meehl, 1997; Litwack, 2001; and Mossman, 2000, all of whom made reasonable observations regarding the shortcomings of contemporary risk assessment).

It is likely that risk assessment practice and science continue to occur at accelerated paces at least in part because the demand has not abated: Increasing numbers of persons are incarcerated and ultimately ask for parole, murder continues to be a leading cause of death among certain demographic groups in the United States, and new laws are emerging that call for risk assessment (i.e., sexually violent predator laws, indeterminate detention laws). Furthermore, given recent empirical successes that demonstrate appreciable statistical effect sizes between either risk factors or risk assessment instruments and violent outcome (Douglas, Ogloff, Nicholls, & Grant, 1999; McNiel & Binder, 1994b; Monahan et al., 2000, 2001; Quinsey, Harris, Rice, & Cormier, 1998; Steadman et al., 2000), researchers may be more encouraged to pursue risk assessment as a worthy topic of study than they have been in the past.

The field's empirical successes can be traced to conceptual and methodological developments. Monahan (1988; see also Monahan & Steadman, 1994a) observed that much of the earlier risk assessment research was characterized by simplistic and "impoverished" predictors and outcome criteria. Perhaps as a result of this admonition, researchers paid greater attention to the conceptualization and measurement of risk factors and of violence. Risk factors were considered in greater detail (see, e.g., McNiel & Binder, 1994a, 1995), often with some theoretical or conceptual underpinning (see, generally, Monahan & Steadman, 1994a, and chapters within Monahan & Steadman, 1994b). Violence was measured from multiple sources (see, e.g., Lidz, Mulvey, & Gardner, 1993), with the result that a much higher frequency was detected than would have been by using only one source, as typically was the case previously (see Mulvey, Shaw, & Lidz, 1994).

More attention has been paid to conceptualizing the actual task of risk assessment itself. It has been recast as risk assessment rather than

violence or dangerousness prediction, emphasizing the ongoing, changing nature of risk as opposed to one-time, dichotomous predictions (Steadman et al., 1993; 1994). Risk assessment itself has been defined as “the process of speculating in an informed way about the aggressive acts a person might commit and to determine the steps that should be taken to prevent those acts and minimize their negative consequences” (Kropp, Hart, Lyon, & LePard, in press; see also Hart, 1998).² Risk has been given greater recognition as more than mere probability, also encompassing nature, severity, imminence, likelihood, and frequency (Hart, 1998; 2001a, 2001b; Mulvey & Lidz, 1995). Violence has been defined by some as actual, attempted, or threatened physical harm of another person that is deliberate and nonconsensual (e.g., Webster, Douglas, Eaves, & Hart, 1997) and by others more strictly as physical battery inflicting injury, sexual assault, and threats or acts with weapons (Monahan et al., 2001)—the point is that at least violence is being defined. Researchers have been investigating preferences (Heilbrun, O’Neill, Strohmman, Bowman, & Philipson, 2000) and effects (Slovic, Monahan, & MacGregor, 2000) of different ways of communicating and reporting about risk.

A prominent reconceptualization within the risk assessment field has been increased attention to risk management where the primary task at hand is not the accurate specification of who will or will not be violent per se but rather the proper selection of strategies to reduce violence and mitigate risk (Heilbrun, 1997). Commentators have started to emphasize the importance of ongoing risk assessment and management rather than one-time, passive prediction (Douglas, Cox, & Webster, 1999; Dvoskin & Heilbrun, 2001; Otto, 2000; Steadman, 2000; Steadman et al., 1993; Webster, Douglas, Belfrage, & Link, 2000); the fact that many contexts call for risk management rather than violence prediction (Heilbrun, 1997; Mulvey & Lidz, 1995; Otto, 2000); that the clinical task often calls for the specification of (dynamic) conditions that may aggravate or mitigate risk, rather than an “on-off, context-free prediction of dangerousness based on a consistent algorithm” (Mulvey & Lidz, 1995, p. 136; Skeem, Mulvey, & Lidz, 2000; Webster et al., 2000); and, ultimately, that the goal of risk assessment is violence prevention, not prediction (Hart, 1998, 2001b).

Despite these important conceptual developments fostering a preventive orientation, most empirical papers on risk assessment con-

tinue to reflect a prediction-based paradigm. As Heilbrun (2001) noted, risk management science is some 10 years behind risk assessment science. There has been little empirical work on the effectiveness of risk management (Dvoskin & Heilbrun, 2001), despite the fact that it appears to be the preferred method for clinicians to understand and communicate about risk assessment (Heilbrun et al., 2000) and for legal and quasi-legal authorities to make decisions. Risk assessment often is judged by whether there is a big statistical effect size obtained; the more the “forensic sound barrier” (Menzies, Webster, & Sepejak, 1985) is surpassed, the more that risk assessment works. However, there are other grounds upon which to evaluate the merit of a risk assessment procedure, including its relevance to risk management.

In this article, we wish to build upon the important groundwork and conceptual developments discussed by Heilbrun (1997), Mulvey and Lidz (1995), Monahan and Steadman (1994a), Steadman et al. (1993), Dvoskin and Heilbrun (2001), Hart (1998), and others to further develop a prevention-based rather than prediction-based paradigm for violence risk assessment. In particular, we present a model for prevention-based risk assessment concentrating largely on research strategies that can be used to evaluate such a model. Our hope is to stimulate a shift from conceptual to empirical work on prevention-based approaches to risk assessment. In particular, we will further develop this prevention-based risk assessment paradigm by (a) discussing the relevance to it of existing risk assessment technology and research, (b) proposing an empirically based risk assessment/prevention system, and (c) outlining a multistep validation process that will be necessary to put into action in order for the literature on risk management and prevention to include empirical works in addition to conceptual and theoretical discourse (which, however, has been necessary to start laying a foundation for data-based approaches).

The Concept of Prevention

The concept of primary prevention typically is used in disease-model and epidemiological frameworks to refer to preventing illnesses before they occur or preventing adverse outcomes, such as partner violence, from occurring (Harlan, 1998; Muñoz, Mrazek, & Haggerty, 1996; Woolf & Atkins, 2001). For instance, writing within a

public health perspective, Caplan and Caplan (2000) defined primary prevention as “organized programs for reducing the incidence (*rate of new cases*) of a disorder in a defined population” (p. 131; emphasis added). Muñoz et al. (1996), in summarizing the Institute of Medicine Report on Prevention of Mental Disorders, differentiated prevention from treatment. Prevention refers to procedures used to prevent a mental illness from occurring in the first place, whereas treatment is something that is applied when an illness already has expressed itself.

The case seems somewhat different when the context is violence. Violence is not a disorder or an illness but a behavior. It is not something that one has and that goes into remission. Nonetheless, some researchers have adopted a primary prevention model with respect to various forms of antisocial behavior, such as adolescent crime and violence (Dahlberg, 1998; Dahlberg & Potter, 2001; Dodge, 2001; Ikeda, Simon, & Swahn, 2001; Webster-Stratton & Taylor, 2001), domestic violence (Koziol-McLain, Coates, & Lowenstein, 2001; McCaw, Berman, Syme, & Hunkeler, 2001; Pearlman & Waalen, 2000; Saltzman, Green, Marks, & Thacker, 2000), and sexual violence (Hall & Barongan, 1997).

Efforts to stem these adverse behaviors often are targeted early in the putative causal chain, such as early childhood (Webster-Stratton & Taylor, 2001; Yoshikawa, 1994). Some programs are aimed at young parents or elementary school systems (see, generally, Dodge, 2001; Ikeda et al., 2001; Webster-Stratton & Taylor, 2001; Yoshikawa, 1994). Some efforts focus on potential victims rather than perpetrators, as in the case of physician screening questions about partner violence (McCaw et al., 2001). There is fairly solid evidence that such early or primary prevention programs are able to prevent some proportion of violence and other adverse outcomes (for reviews of the effectiveness of primary prevention with respect to antisocial behavior and more broadly, see Cowen, 2000; Yoshikawa, 1994).

This primary prevention focus clearly achieves great benefits for society and individuals who are its recipients. The focus of this article, however, is not on early intervention or primary prevention. Although primary prevention is a laudable endeavor, it remains the case that the antisocial behavior of many persons is not prevented, and they end up in correctional or forensic facilities and eventually subject to a violence risk assessment. As Dodge (2001) commented, when society’s

efforts to prevent violence from occurring in the first place have failed, preventive efforts must still be undertaken but will take on different, typically more proximal, form. It is at this point in the process that this article focuses, and it remains a point with a good deal of need. The framework for discussion, then, will be reduction of violence among individuals or samples rather than among populations or communities.

Is prevention still a germane concept, then? Some, as discussed above, have asserted that the term *prevention* should be reserved for the predisease or precrystallization phase of life, and that once a disease sets in or a life-course-persistent antisocial personality is concretized, then the concept of prevention is moot and focus must be shifted to treatment and maintenance (Muñoz et al., 1996). With respect to violence more specifically, there is an implicit conceptualization in early prevention research of deviant behavior as something that crystallizes at a certain age, and that this crystallization marks the onset of something akin to a disease, to use primary prevention terminology. To some extent, this is a matter of semantics because the overarching goal of prevention and treatment, at least as framed in this article, is the reduction of the outcome of interest, whether it has occurred previously or not. It is again important to emphasize that the concept of primary prevention seems to have a firmer conceptual grounding when the outcome of interest is a disease or disorder rather than a behavior. Although there may be general consensus that there are many early risk factors for later violent behavior, there is less consensus about when, if ever, a tendency toward antisocial behavior crystallizes. Some argue that the age is approximately 8 (Webster-Stratton & Taylor, 2001); others state it is probably closer to 18 (Moffitt, 1993). There is probably some danger here of confounding the construct of antisocial personality with that of antisocial behavior. The former is one of multiple pathways to violence, whereas the latter may be the outcome of multiple pathways. The focus of this article is on antisocial, and in particular violent, behavior, rather than antisocial personality.

There are many commentators, both within the prevention sciences and more specifically with respect to antisocial and violent behavior, who conceptualize efforts to reduce violence among samples who have already acted violently as prevention, broadly construed. Tech-

nically, these efforts could be considered secondary prevention. Regardless of one's focus, it remains the case that there are numerous overlapping concepts between primary prevention, secondary prevention, and treatment, whether one is dealing with major depression, trichotillomania, cancer, or violence. All attempt to reduce the occurrence of an adverse outcome. All place the identification of risk and protective factors at the center of the search to carry out such reduction. All consider modifiable or dynamic risk factors to be the most promising targets to accomplish reduction. These themes—reduction of adverse outcomes, identification of risk factors, focus on modifiable risk, targeting of high-risk populations and persons—are integral to notions of primary prevention. They are also themes that will be featured prominently throughout the discussion that follows, in which efforts to reduce violence are considered prevention even if they are not primary prevention.

So under a prevention-based paradigm for risk assessment, how will we know when risk assessment works? *Risk assessment should be considered successful when we can demonstrate reduced rates of violence in connection with risk assessment procedures.* We are suggesting the need for an integrated model of risk assessment and management/treatment, one in which violence prevention strategies flow directly from risk assessment procedures.

We concede and agree that it is crucial for management and prevention decisions to be based on reliable and valid systems of identifying persons who are more or less likely to be violent in the future. That is, to prevent a behavior some sort of prediction—or statement about the future—is needed. Some commentators, such as Mulvey and Lidz (1995), have preferred to characterize such predictions as concerns rather than as absolute fixed probability statements. This nexus between prediction and prevention will be drawn out in subsequent sections of the article. At this point, we will state that we consider a certain model of risk assessment—the structured professional judgment model—to offer certain advantages over traditional clinical judgment and actuarial prediction in terms of making statements about future behavior. However, we consider these models of risk assessment more as means to an end, rather than as ends in themselves. They are tools that can be used to achieve the ultimate goal of prevention and violence reduction. Tools are not inherently valuable;

their worth lies in their ability to accomplish some other end. Our next topic of discussion pertains to these various tools, or methods of violence risk assessment, and their relevance to prevention. We make the suggestion that one of these—what we are calling structured professional judgment—might be worthy of scientific evaluation in a prevention-based paradigm of risk assessment.

MODELS OF RISK ASSESSMENT

The history of violence risk assessment has been previously reviewed in detail (Borum, 1996; Douglas, Cox, et al., 1999; Douglas & Webster, 1999; Hart, 1998; Melton, Petrila, Poythress, & Slobogin, 1997; Monahan, 1996; Monahan et al., 2001; Otto, 1992, 2000; Quinsey et al., 1998; Steadman, 2000; Webster & Bailes, 2000). What are the existing methods of risk assessment? We revisit here the most mentioned models of risk assessment with a specific focus on violence prevention. We comment on four models, or methods, of risk assessment: unstructured clinical, actuarial, anamnestic, and structured professional. We will propose that structured professional judgment will most often be appropriate, *in practice*, to prevent violence.

Unstructured clinical assessment is a process involving no constraints or guidelines for the evaluator. Decisions are made with considerable clinical discretion and are usually justified according to the qualifications and experience of the person making them. The approach has been widely criticized for lacking reliability, validity, and accountability (Litwack & Schlesinger, 1987, 1999; Quinsey et al., 1998) and has been labeled “informal, subjective, [and] impressionistic” (Grove & Meehl, 1996, p. 293). One traditional advantage of unstructured clinical assessment is that it allows for an idiographic analysis of the offender’s behavior and a person- and context-specific tailoring of risk management and violence prevention strategies. However, because the approach maximizes professional discretion, it is vulnerable to missing important factors that require intervention. Recommendations for management strategies—if they are made at all—might be based more on the training, preferences, and biases of the evaluator rather than on (a) a well-reasoned consideration of dynamic and criminogenic (i.e., crime relevant) risk factors and

(b) intervention strategies that are either empirically valid or well accepted in the field.

The actuarial method of risk assessment is inseparable from the prediction paradigm (see Heilbrun, 1997). Such methods are designed to predict specific behaviors within a specific time frame. The stated goal of the actuarial method is to predict violence in (a) a relative sense—by comparing an individual to a norm-based reference group, and (b) in an absolute sense—by providing a precise, probabilistic estimate of the likelihood of future violence. Grove and Meehl (1996) have described this approach as “mechanical and algorithmic.” Numerous commentators have discussed the potential shortcomings of actuarial approaches with respect to prediction—including difficulties with generalizability, exclusion of low base rate but important risk factors, and rigidity—and we will not repeat this discussion here (Hart, 1998; Litwack, 2001; Melton et al., 1997). We will, however, make some comments concerning the role of actuarial prediction within a prevention-based model of risk assessment.

The actuarial approach is not particularly conducive to violence prevention. The actuarial approach can assist the evaluator to estimate, in a relative sense, the risk posed by an individual over a fixed time period, compared to a reference group. From a violence prevention perspective, this can inform us about the overall level of risk management that might be required (i.e., the greater the risk, the greater the necessary resources). However, it does little to inform us about specific violence prevention strategies. Heilbrun (1997) contrasted “prediction versus management” models of risk assessment, noting that the prediction model likely has minimal implications for management due, in part, to its lack of sensitivity to change. To properly apply the actuarial approach, the evaluator is forced to consider a fixed set of factors and cannot consider unique, unusual, or context-specific variables that might require intervention (Hart, 1998). Moreover, actuarial instruments often lack a goodness of fit with offender treatment programs: There is an incongruence between violence prevention program targets such as attitudes towards violence, denial and minimization, and victim empathy and risk assessment instruments that fail to consider such things. The actuarial approach, then, does not seem to be well suited to a violence prevention paradigm.

Some authors have referred to the anamnestic approach to risk assessment (e.g., Melton et al., 1997; Miller & Morris, 1988; Otto, 2000). In this approach, the evaluator must “identify violence risk factors through a detailed examination of the individual’s history of violent and threatening behavior” (Otto, 2000, p. 1241). In this way, the examiner attempts to identify violent themes, pathways, and risk factors unique to the individual in question. This approach appears similar to relapse prevention methods that have been popular in the field of violence treatment (e.g., Laws, 1989), and therefore it has tremendous potential for violence prevention. Presumably, by identifying an offender’s violence pattern, plans can be devised to recognize early signs of escalation in order to break that pattern. To our knowledge, however, there is no published literature with respect to the procedure and evaluation of this model. Moreover, Hart (2001a) has commented that the model assumes a behavioral chain that will repeat itself and thus be predictable. This assumption does not recognize the multifarious and dynamic nature of violence. That is, we should always remember that the same individual can be violent in many different ways and in many different circumstances.

We have labeled the final method structured professional judgment. We use the term *professional* (Kropp & Hart, 2000) to allow for the reality that there are many nonclinical professionals (i.e., police officers, probation officers, victim services personnel) that are often required to conduct violence risk assessments. The measures produced under this model can best be considered guidelines or *aides-mémoire* rather than formalized tests.³ The method has also been termed the “guided clinical approach” by Hanson (1998, p. 52). Here, the evaluator must conduct the assessment according to guidelines that reflect current theoretical, clinical, and empirical knowledge about violence. Such guidelines provide the minimum set of risk factors that should be considered in every case. The guidelines will also typically include recommendations for information gathering (i.e., the use of multiple sources and multiple methods), communicating opinions, and implementing violence prevention strategies. The method is certainly more prescribed than the unstructured clinical approach but much more flexible than the actuarial or anamnestic approaches. Structured professional judgment does not impose any restrictions for the inclusion, weighting, or combining of risk factors.

In this way, the approach still meets Grove and Meehl's (1996, p. 293) definition of "subjective, impressionistic" decision making. Typically, however, assessment schemes of this ilk are considerably more structured than traditional clinical prediction, providing structure in terms of which risk factors to consider, as well as operational definitions for the scoring of the factors. The flexibility enters in terms of the final step of combining risk factors, which is not done algorithmically. Structured professional judgment does not abrogate the professional responsibility and discretion of the evaluator, but it does attempt to improve the consistency and visibility of risk judgments.

We believe that the structured professional approach to risk assessment is ideally suited to a violence prevention paradigm. By systematically identifying risk factors—particularly dynamic or changeable risk factors—relevant to a case, management strategies can be tailored to prevent violence. We recognize that this approach has been popular in the corrections field for some time, demonstrating some success in preventing general criminal recidivism (Andrews & Bonta, 1995). Indeed, the corrections literature has long recognized the importance of identifying risk and needs factors in individuals in order to effectively manage their behavior. It should also be noted that the structured professional approach resembles clinical practice parameters quite commonly used in medicine (Kapp & Mossman, 1996). We are advocating the same commonsense approach to violence prevention. The structured professional approach allows for a logical, visible, and systematic link between risk factors and intervention, in addition to the ability to identify persons who are at higher or lower risk for violence. Some examples of the links between violence risk factors and prevention strategies are provided in Table 1.

A PREVENTION-BASED MODEL OF RISK ASSESSMENT

We have identified the prevention of violence as the ultimate goal of the risk assessment endeavor⁴ and also outlined various existing approaches to risk assessment. We propose that structured professional judgment may be particularly well suited to incorporate the following: (a) accurate identification of persons at different levels of risk; (b) application across a fairly diverse range of settings and contexts, stemming from rational measurement development that is not opti-

TABLE 1: Examples of Violence Risk Factors and Related Prevention Strategies

<i>Risk Factor</i>	<i>Strategy</i>
Past violent behavior	Incarceration Intensive supervision Corrections-based violence treatment
Past violations of conditional release or community supervision	Incarceration Intensive supervision Correctional relapse prevention program
Relationship problems	Dispute resolution Couples counseling Financial counseling Legal advice/family court Restraining order
Employment problems	Vocational counseling Financial counseling Drug/alcohol treatment Social work intervention
Victim of and/or witness to family violence as a child or adolescent	Individual therapy Post-traumatic stress treatment Spousal assault group program Family treatment
Substance abuse/dependence	Parenting skills Drug/alcohol treatment Court-ordered abstinence Urine screening
Recent suicidal or homicidal ideation/intent	Crisis counseling Hospitalization Psychotropic medication Cognitive-behavioral therapy Weapons restrictions Individual treatment Drug/alcohol restrictions
Recent psychotic and/or manic symptoms	Hospitalization Psychotropic medication Individual treatment Drug/alcohol restrictions
Personality disorder	Long-term individual therapy Intensive supervision Specialized therapy for personality disorders (e.g., dialectical behavior therapy & therapeutic communities)

mized on single samples or for limited purposes; (c) incorporation of a comprehensive compilation of violence risk factors that provides adequate “domain coverage” of violence risk and that can be

supplemented with case-specific idiographic risk factors; (d) the inclusion of criminogenic risk factors, defined as dynamic risk factors that are causally related to violence; (e) direct connection with risk reducing management and prevention strategies; and (f) testability or falsifiability.

There are now several examples of structured professional judgment guidelines in circulation, including the *Spousal Assault Risk Assessment Guide* (SARA) (Kropp, Hart, Webster, & Eaves, 1999), the Sexual Violence Risk-20 (SVR-20) (Boer, Hart, Kropp, & Webster, 1997), the Risk for Sexual Violence Protocol (RSVP) (see Laws, 2000), the Early Assessment Risk List for Boys (EARL-20B) (Augimeri, Koegl, Webster, & Levene, 2001), and the Structured Assessment for Violence Risk in Youth (SAVRY) (Borum, Bartel, & Forth, 2001). This approach also has been applied to the assessment and management of stalking behavior (Kropp et al., in press). However, the most researched example of the structured professional approach is the Historical, Clinical, Risk Management-20 (HCR-20) (Webster et al., 1997).⁵ A more detailed discussion of this instrument will help illustrate the violence prevention paradigm of risk assessment.⁶

The HCR-20: An Example of Structured Professional Judgment

We illustrate one possible operationalization of a violence prevention approach to risk assessment by discussing the HCR-20 violence risk assessment scheme (Webster et al., 1997) and its recently developed, edited companion compilation, the *HCR-20 Violence Risk Management Companion Guide* (Douglas, Webster, Hart, Eaves, & Ogloff, 2001). We by no means wish to suggest that this is the only approach or system, just that it is one existing procedure that could be ready for evaluation in a prevention-based paradigm of risk assessment.

The HCR-20 is one example of structured professional judgment or guidelines for the assessment of risk for violence. As shown in Table 2, it contains 20 risk factors across 3 subscales—10 Historical, primarily static risk factors; 5 Clinical, potentially dynamic risk factors relating to current or recent clinical functioning; and 5 Risk Management risk factors, which are also potentially dynamic but relate to future considerations of situation and context. Clinically, evaluators are encouraged to come to a decision about a person's risk

TABLE 2: Scales and Items of the HCR-20 Violence Risk Assessment Scheme

<i>Historical (Past)</i>	<i>Clinical (Present)</i>	<i>Risk Management (Future)</i>
Previous violence	Lack of insight	Plans lack feasibility
Young age at first violent incident	Negative attitudes	Exposure to destabilizers
Relationship instability	Active symptoms of major mental illness	Lack of personal support
Employment problems	Impulsivity	Noncompliance with remediation attempts
Substance use problems	Unresponsive to treatment	Stress
Major mental illness		
Psychopathy		
Early maladjustment		
Personality disorder		
Prior supervision failure		

SOURCE: Adapted from Webster, Douglas, Eaves, & Hart (1997). Used by permission.

for violence—low, moderate, or high relative to persons in comparable settings. Risk level is intended to be connected to the degree of intervention or management that is required to prevent violence. Risk levels are not tied to particular scores, for reasons associated with the problems of a purely predictive approach. As the HCR-20 acknowledges, however, it is generally true that the more risk factors that are present the greater the risk for violence. More precise estimates of risk could always be derived based on specific studies, although these high-fidelity estimates may not generalize well across studies, a problem noted above with actuarial prediction methods. As such, general categories of high, moderate, and low risk were selected as being optimally informative and at the same time stable. This means of communicating risk has been recommended by others as well (Heilbrun, Dvoskin, Hart, & McNiel, 1999; Monahan & Steadman, 1996; Otto, 2000).

The *HCR-20 Violence Risk Management Companion Guide* (Douglas et al., 2001) provides some clinical and practical guidance for violence risk management and intervention. For each of the 10 putative dynamic risk factors on the HCR-20 (i.e., the 5 Clinical [C] and 5 Risk Management [R] items), a brief chapter is provided with intervention and management strategies that flow directly from the risk factor (there is also information on the relevance of static historical risk factors for risk management). In theory, targeting these

dynamic risk factors systematically should reduce risk and, it is hoped, prevent subsequent violence.

For this system to work, there are several conditions that must be met. First, the risk factors must actually change in response to attempts to do so. Second, the risk factors must be related to the type of violence that one is trying to prevent. If these two conditions are met, then one would expect reductions in the risk factors to be followed systematically by reductions in actual violent behavior (and, conversely, increases on the risk factors to be associated with higher levels of actual violent behavior). Although there is a need for more research into these two conditions, existing research is reasonably supportive. If these conditions are met—that risk factors are manipulable and that such manipulations relate to changes in the outcome criteria—then the risk factor can be considered a causal risk factor (Kraemer et al., 1997).

Concerning change in risk factors, evidence is emerging from four samples that supports the position that the C and R scales and item scores decline in the context of forensic and civil psychiatric inpatient treatment (Belfrage & Douglas, 2002; Douglas & Belfrage, 2001; Webster et al., 2000). Other research studies have shown a link between HCR-20 scales, including the C and R scales, and violence across various settings, such as civil psychiatric and forensic psychiatric patients, correctional offenders, and mentally disordered offenders (see Dolan & Doyle, 2000; Douglas, 2001a; Mossman, 2000; and Witt 2000, for reviews of research). Most research supports the interrater reliability of the HCR-20 as well (see, e.g., Belfrage, 1998; see Douglas, 2001a, for a review of relevant research).

In general, then, a prevention-based paradigm for risk assessment includes evaluating persons on a comprehensive domain of established violence risk factors and selecting an appropriate risk level based partially on the number and nature of risk factors present, as well as on the anticipated degree of intervention, management, and preventative action required to stem the occurrence of violence. Furthermore, this model suggests that the risk factors that comprise the assessment also provide the basis for the preventative measures. That is, there should be management and treatment options available that flow directly from the assessed risk factors. As such, it is important

that some reasonable proportion of these risk factors are good treatment targets, which likely means that they are dynamic or criminogenic (changeable and causally related to violence). Of course, static risk factors also have obvious bearing on risk level and management strategies, as will be discussed below. The risk reduction strategies that flow from the assessed risk factors can be idiographically selected to match as closely as possible the risk factors that are relevant for a given individual. We describe in more detail below how some risk management and violence prevention studies and systems could be designed in order to accomplish this goal.

FOUR-STEP VALIDATION PROCEDURE

It is our observation that a prevention-based paradigm to risk assessment at least informally can be said to characterize much day-to-day clinical practice and clinical-legal evaluation (see also Dvoskin & Heilbrun, 2001, with respect to forensic psychiatric systems). The same cannot be said, however, about the research endeavors in risk assessment. That is, as described above, most studies adhere firmly to the prediction paradigm.

According to current test standards jointly derived and adopted in 1999 by the American Educational Research Association, the American Psychological Association (APA), and the National Council on Measurement in Education (1999),⁷ the empirical evaluation of psychological measures and assessment procedures should parallel their intended clinical use or uses. Although measures under the structured professional judgment model can more accurately be considered guidelines rather than formalized tests, the APA test standards still provide clear guidance for their evaluation. As such, the evaluative strategy optimally should map onto prescribed applications of these guidelines. In this way, it is the validity of the particular use of the measure or procedures, rather than the measure or procedure per se, that is the subject of empirical scrutiny. Similarly, the type of reliability that is of prime interest depends on the characterization of the procedure and its intended use. Of course, this is logical, given that it is the particular applications and prescribed uses of measures on which decisions are based and ultimately that affect peoples' lives. In short, there ought to be congruence between the way in which measures and

procedures are to be used and the manner in which they are evaluated. As stated above, we put forth in this article that the main clinical task is not only assessment and the relationship between the assessment and violence but also violence prevention and the relation between the assessment task and this prevention. In short, research enterprises must address prevention.

We propose that there are four main steps in the validation procedure for a prevention-focused paradigm for violence risk assessment and management: (1) validate the initial procedure of selecting the risk factors; (2) demonstrate a relation between the risk factors themselves, as operationalized, and violence; (3) demonstrate a relation between clinical decisions based on these risk factors and violence; and (4) reduce or prevent violence as a result of using this model. Existing risk assessment research has focused on the first two of these, and primarily the second. The lens model approach, which disaggregates and evaluates relationships among cues (risk factors), predictions, and outcome criteria (violence), has been applied profitably to the second and third approaches (i.e., see Monahan & Steadman, 1994a). We suggest that a glaring omission in the risk assessment field, however, is the absence of research that addresses whether risk assessments actually lead to the prevention or reduction of violence. Our recommendation is that the conceptualization of risk assessment be broadened or refocused to include, as its main element, this prevention component. The other three aspects are fundamental but exist to further prevention. What type of research is necessary at each validation step? Given the rationale derived from APA test standards, various approaches are required.

Step 1: Selection of Risk Factors

This step has a fair amount of existing research evidence, and little time will be spent discussing it. In essence, researchers should select for study putative risk factors that have scientific or theoretical connections to violence. We agree with Steadman et al. (1993) that there is not a unified theory of violence, although there are numerous “mini-theories” (p. 47) that specify plausible pathways to violence—anger, impulsivity, psychopathy, childhood maltreatment, poor aftercare plans, and so forth. The selection of risk factors, then, should have face

and content validity. Risk factors also should have legal validity (i.e., not be discriminatory; Hart, 1998) and clinical and practical utility.

Step 2: Connection Between Risk Factors and Violence

Either singly or in combination, risk factors need to be shown to have an empirical relationship with violence (otherwise they would not be risk factors). It is this step that likely has the most research support behind it and, for this reason, also will not be the focus of considerable attention here (see Douglas & Webster, 1999; Lyon et al., 2001; Monahan & Steadman, 1994b; and Otto, 2000, for reviews of risk factors). Research also has supported the use of risk factors in combination (as represented by various risk assessment instruments) to predict violence (i.e., Douglas, Ogloff, et al., 1999; Hanson & Thornton, 2000; McNiel & Binder, 1994b; Monahan et al., 2001; Quinsey et al., 1998).

There are, however, several research strategies that we believe would further this step of the validation procedure. First, given the importance to this model of selecting dynamic risk factors, research is recommended on the changing course of risk factors and the relationship between increases and decreases in such risk factors and corresponding increases or decreases in violence. The first step here is to evaluate the actual change in risk factors over time. The second step is to evaluate the relationship between these changes and the occurrence of violence.

There are few studies in this area. In terms of the change in risk factors, data on change in HCR-20 risk factors was referred to earlier (Belfrage & Douglas, 2002; Douglas & Belfrage, 2001; Webster et al., 2000). Hanson and Harris (2000) measured the relationship between dynamic risk factors and sexual recidivism among a group of approximately 400 sexual offenders. Dynamic risk factors were predictive of recidivism, even after controlling for static risk factors. One problem with the design, however, was that the data were collected through files and the retrospective recall of community supervision officers (who recalled the status of offenders on various risk factors 1 month prior to recidivism or the date of the interview for nonrecidivists and then 6 months prior to this). In some case, officers were expected to recall offenders' statuses on dynamic risk factors from 4 to 5 years ago. In addition, these officers were not blind to the recidivism status

of the offenders. Although Hanson and Harris (2000) took steps to address these shortcomings and also provided a reasonable discussion of the limiting nature of their design, it remains the case that a prospective design would provide stronger support for the connection between dynamic factors and (sexual) violence. Nonetheless, the findings are novel and important.

Research by Skeem et al. (2000) is also relevant here. This team studied whether “conditional predictions” of violence can be made accurately. In essence, they reasoned that it is important to know whether clinicians can specify the conditions under which violence is most likely to occur. Focusing on alcohol use, they had clinicians specify whether violence was likely to occur as a condition of alcohol use and whether violence was more likely to occur during a drinking episode than not. Implicit in this approach is the assumption that alcohol use is a dynamic risk factor (which seems reasonable), that clinicians can decide for whom this risk factor is likely to change (i.e., who will drink), and for whom this change is likely to lead to violence. Alcohol use and subsequent violence were related in the sample (although characterized by a small effect size). Furthermore, clinicians were able to predict (again, with a small effect size) which patients were more likely to drink than others (i.e., their predictions that persons were more likely to be violent when drinking were related to increased frequency of drinking). However, Skeem et al. (2000) failed to find support for their hypothesis. That is, clinicians were unable to accurately specify for which patients drinking was likely to lead to violence. It may be that the overall weak relationship between drinking and violence in this particular sample made this task more challenging than if the relationship were stronger. Furthermore, a modification of the methodology of Skeem et al. (2000) that might be fruitful would be to evaluate reassessments of alcohol use later in time (on an ongoing management or monitoring basis) rather than evaluating the connection between the original predictions (of both risk for violence and for drinking) and outcome.

Despite the lack of support for their hypotheses, the approach taken by Skeem et al. (2000) represents an important advance in research on risk assessment. It also suggests that there is likely a fair amount of research left to do in support of a preventative model of risk assessment that relies on dynamic risk factors. Future studies on this topic

that attempt to identify under which conditions clinicians are able to specify dynamic conditions for the occurrence of violence will be important.

Generally, the research design that would be most useful for this validation step is a prospective, repeated-measures study, which would be best suited for identifying (a) changes in risk factors and (b) the relationship between these changes and the occurrence of violence. Statistically, Cox proportional hazards survival analysis with time-dependent covariates would seem able to identify the relationship between changes in risk factors and the occurrence of violence (or, more specifically, changes in the hazard function that are related to changes in risk factors).

We are aware of no published risk assessment studies that employ this specific approach. A study that might permit such analyses, however, is the MacArthur risk assessment project (Monahan et al., 2000, 2001; Steadman et al., 1998, 2000). This sophisticated, large-scale project was prospective and included repeated measures of numerous putatively dynamic risk factors (i.e., social support, stress, suicidality, violent fantasies, delusions, hallucinations, treatment, substance use). To date, the MacArthur research team has focused on predicting violence that occurred during the first two follow-up periods (up to 20 weeks postdischarge).

Another useful methodology for studying the potential effects of particular risk factors on violence (or, more generally, the immediate precursors to any sudden event) is the case-crossover design. As Maclure and Mittleman (2000) explain, this design is intended to discern whether something unusual happened just prior to some event (i.e., violence) for all persons who experienced the event. The control condition in this design is time based, rather than participant based, and the design is retrospective. That is, it asks What was present just before the (violent) incident that was not present, say, the same time the day before the incident, for the same people? There can be multiple control time periods. In essence, the design seeks to estimate the strength of various potential triggers for an event.

Case-crossover studies have been used broadly in medicine, health services research, and auto safety research (in the latter case, it demonstrated an effect between use of car phones and motor vehicle accidents). Maclure and Mittleman (2000) described that the methodol-

ogy may be particularly useful for acute events and their proximate triggers because it is fairly simple to define precisely when the event occurred. In the present context, a violent behavioral act often may be considered acute, meaning that the search for triggers in some time period (hours, days, weeks) beforehand can be defined fairly precisely. In fact, this design could be used to search for immediate precursors to violence as well as more distal, though still recent, ones. Similarly, control time periods also can be selected fairly precisely to match the time periods under investigation.

The term *cross-over* means that at least some of the sample (i.e., some of the violent people) crossed over from low to high exposure to a potential trigger (i.e., on a dynamic risk factor) (Maclure & Mittleman, 2000, p. 196). This design can be used to estimate gradual versus quick crossover, prolonged versus transient exposure to a risk factor, and acute versus chronic effects of exposure to risk factors. These approaches could have numerous meaningful applications in the field of violence risk factor research. For instance, they could inform the search for acute versus stable dynamic violence risk factors described by Hanson and Harris (2000).

This methodology uses other concepts that have direct application to the effect of a risk factor on violence. As described by Maclure and Mittleman (2000), the induction time is the time period between a trigger and the outcome; effect period refers to the time period between minimum and maximum induction times; hazard period is the time after a trigger is activated (when a risk factor passes some critical threshold); and an exposure window refers to a sampling time frame prior to the outcome, which can be seconds, minutes, days, weeks, and so on. This design, then, appears to have numerous relevant applications to the study of violence risk factors.

A further advisable step is to adopt a common language concerning the changeability and causality of risk factors. We have found a model proposed by Kraemer et al. (1997) to be especially useful. First, to classify a factor as a risk factor it has to be shown to correlate with and precede the outcome of interest. Risk factors are then described as variable (or time varying) versus fixed (or nonvarying). This distinction parallels the concepts of dynamic and static, referred to above. A variable risk factor can be shown to change, either spontaneously or by intervention. A fixed marker is a risk factor that cannot be shown to

change. If the status of change is unknown, Kraemer et al. (1997) suggest describing it using the general term *risk factor*, which specifies neither variability nor fixedness. If a variable risk factor can be manipulated, and this manipulation affects the outcome, it is a causal risk factor. If a variable risk factor cannot be shown to be manipulable, or if it can but the manipulation does not affect change in the outcome, it is a variable marker. If the manipulability or effect on the outcome of a variable risk factor is unknown, it should just be called a variable risk factor. Furthermore, as described earlier, Hanson and Harris (2000) suggested that dynamic factors (i.e., variable risk factors in Kraemer et al.'s, [1997] typology), causal or otherwise, may further be described as acute (could change in a minutes, hours, or days) or stable (change only over months or years).

As Kraemer et al. (1997) pointed out, "single-time point assessments" (p. 341) of variable markers or factors create an impediment to the search for causal risk factors. Research designs need to be sensitive to the status of risk factors. Cross-sectional or retrospective designs may appropriately be used to detect fixed factors but will be less useful for measuring variable factors. As we have discussed above, prospective, repeated-measures designs are best suited to the task of measuring variable factors.

We would also recommend that researchers start to evaluate the contributions of risk factors to the multiple facets of risk listed earlier—imminence, frequency, nature, likelihood, and severity (Hart, 1998, 2001a; Mulvey & Lidz, 1995). Commonly, the focus is on the likelihood of violence, and sometimes the frequency. However, other factors, such as severity and imminence, often will be relevant to various clinical settings. Furthermore, the nature of violence that is of concern (instrumental vs. hostile-reactive, sexual, stalking, domestic) will most probably require differing management and treatment strategies and be connected with differing risk factors.

Finally, we issue a caveat here: Research on change, particularly concerning constructs that persons might wish to minimize, can be difficult. Change scores themselves (i.e., subtracting one mean score from another and using the remainder as the unit of analysis) can be problematic in that they incorporate measurement error from each measurement period. Survival analysis can help to avoid some of these problems (Luke & Homan, 1998). Furthermore, self-report and the

collateral report of others can be prone to response styles (such as positive impression management) and heuristics. Recall procedures that rely on memory can be subject to memory biases and inaccuracies. Using multiple clinician ratings over time seems important in order to counter these problems to some degree. However, even here difficulties arise. If the clinicians are not the same at the different time points, then lack of interrater reliability threatens the integrity of the data. If the clinicians are the same, halo effects and other clinician biases must be avoided.

Step 3: The Relation Between Decisions Based on Risk Factors and Violence

Research in this step will follow the model of decision making chosen by the researchers, reviewed above (i.e., actuarial, structured professional judgment). There needs to be some assurance that these decisions, as they are intended to be used in practice, relate to violence. Research showing effects between violence and risk assessment measures (Douglas, Ogloff, et al., 1999; Hanson & Thornton, 2000; McNiel & Binder, 1994b; Monahan et al., 2000, 2001; Quinsey et al., 1998; Steadman et al., 2000) or the structured clinical decisions based upon some of these measures (Dempster, 1998; Douglas, 2001b; Kropp & Hart, 2000) provide some support for this validation step.

Note here, however, the fundamental irony between this step and between a preventive approach to risk assessment. We actually do not want persons identified as high risk to become violent; in practice, we do not want to be able to confirm predictions because doing so comes at the expense of victimization. In essence, we do not want to be able to achieve large statistical effect sizes that will support a predictive measure because this will mean that we failed at preventing violence (Hart, 1998).

As such, one of the inherent problems with this research step is that we often influence the outcome we are trying to study. For instance, persons who are identified as moderate or high risk may well receive supervision or treatment services, and these services could then influence (reduce) the likelihood of their acting violently. This is known as obtrusive measurement. If left alone, persons identified as high risk might perpetrate more violence than their low- or moderate-risk coun-

terparts. Society (appropriately) intervenes, however, perhaps minimizing any true differences that would have emerged otherwise.

Some research has dealt with this methodological problem by using fairly passive research designs that have no connection with actual release or aftercare procedures. For instance, completing a risk assessment instrument on persons for research purposes alone at least allows the opportunity to observe persons that have been identified in some manner (by the researchers) as low or high risk somewhat independently from actual release or classification decisions. However, such an approach is different than studying risk assessments in actual practice, where the task often will be to "prove the prediction wrong" (Hart, 1998).

At the same time, however, there has to be some basis on which to make decisions about who is lower risk, and in need of fewer preventative measures, and who is higher risk, and in need of a greater amount of preventative services. This may be accomplished through evaluation of (a) the association between risk factors and violence, discussed above; (b) nonobtrusive risk assessment studies, in which scores on risk assessment measures, or structured clinical decisions, are unconnected with daily release, classification, or follow-up practices; and (c) the association between decisions and proxies for violence, such as the administration of *pro re nata* medication or side rooms to deescalate persons who are starting to show possible precursors to violence (hostility, agitation, verbal outbursts). Furthermore, as with previous steps, we would recommend that researchers evaluate the many facets of risk beyond likelihood.

Fundamentally, however, as Litwack (2001) points out, it is almost impossible ethically to carry out a risk assessment study that is not unencumbered by challenging methodological constraints and that closely parallels actual clinical practice. For this reason, there always will be some degree of inference involved in selecting people who are likely at lower risk and those who are likely at higher risk. The validity of such decisions cannot truly be established in a direct fashion. Reasonable estimates of risk level can be developed, however, through guidance by the three types of research endeavors listed in the previous paragraph.

Step 4: Relation Between Risk Assessment and the Prevention of Violence

This step essentially involves evaluating the previous two steps vis-à-vis their ability to *prevent* violence, rather than to predict violence. This step goes beyond traditional risk assessment studies that focus usually on the second or third steps. As far as we are aware, there are no studies that assess the preventative effect of risk assessment. Studies are necessary that evaluate the validity of decisions about risk in terms of their utilities to prevent violence. For instance, clinician *Y* might decide that person *X* is at moderate risk for violence based on the presence of six static risk factors and five dynamic risk factors. Clinician *W* might decide that person *Z* is at high risk for violence based on the presence of seven static risk factors and eight dynamic risk factors. In both cases, the goal is to prevent any violence from occurring, regardless of the risk factors that are present and whether the person is confined to an institution or being monitored in the community. Even a person who is low risk and is about to be released from an institution might have numerous static and some dynamic risk factors present. Again, the goal is to prevent violence from occurring.

As described earlier, the ideal clinical responses to these varying situations would entail the application of intervention and management techniques that target, very directly, the risk factors that have been identified in the assessment as placing persons at low, moderate, or high risk. Note that even persons who are currently described as low risk might still be considered conditionally at moderate or high risk should certain dynamic risk factors re-emerge (Mulvey & Lidz, 1995). Continued application of appropriate risk management and intervention strategies in theory will maintain a person's risk at an acceptable or reasonable level. As part of this model, however, it is necessary to plan for changes in the status of dormant risk factors. Adopting an ongoing risk reassessment and management revision process would permit timely application of key intervention and management strategies at different points in time, depending on clinical need.

Note that this step is somewhat different than existing treatment studies as well. These studies tend to apply certain treatments to all participants in a program—for instance, applying relapse prevention

treatment to a relatively heterogeneous group of sexual offenders or a cognitive-behaviorally based therapeutic community to a heterogeneous group of dually diagnosed offenders. These programs tend to provide the same treatment to all offenders or patients who are participants in this study. This has research-based benefits as well as efficiency-based clinical appeal. However, it also assumes that all participants have the same relevant causal risk factors, and that application of the same treatment will therefore reduce their risk for future violence.

Although it is almost certainly the case that patients and offenders share common risk factors, there also undoubtedly will be important interindividual variation. To the extent that treatment and management programs cannot account for this variation, risk factors may go unaddressed. The current prevention-based risk assessment and management model emphasizes the idiographic identification of case-specific risk factors and the application of interventions to address these risk factors in the individual case.

What sorts of research studies are needed to evaluate this fourth step in the validation process? There are two primary, related research questions here. First, can dynamic risk factors systematically be altered through intervention and management procedures? Second, can violence be prevented through this endeavor? In terms of the first question, studies are needed that can track the status of risk factors over time in response to directed attempts to reduce them. As with Step 2 validation procedures, repeated-measures, prospective studies using analyses such as Cox proportional hazards analyses with time-dependent covariates could be beneficial.

The second type of research strategy addresses the fundamental question of whether the systematic reduction of dynamic risk factors results in a lower incidence of violence than other existing management and treatment procedures. Although the focus is on dynamic risk factors, a word about the relevance of static risk factors is necessary. Static risk factors need to be integrated into both clinical and research considerations within any preventative model (Hart, Webster, & Douglas, 2001). As Hart et al. explain, static or fixed factors may be useful for estimating longer term risk for violence. In addition, they should inform the intensity of management services as well as the priority of who receives services. They should shape the appropriate

level and content of monitoring, supervision, treatment, and victim safety planning (see also Kropp et al., in press).

It is also worth speculating whether static risk factors necessarily give rise to static risk. That is, static risk factors, by definition, cannot change. However, the risk they produce might. For instance, management and intervention procedures could, in theory, mitigate the risk associated with a static risk factor. It is also the case that many static risk factors are likely not causal in nature. A history of previous violence—a robust static risk factor for violence—does not likely cause future violence but rather marks an elevated risk for such. In Kraemer et al.'s (1997) typology, such factors would be fixed markers rather than causal risk factors. Causal factors that gave rise to the occurrence of the previous violence in the first place are probably the cause for concern with respect to future violence. Identifying these risk factors and targeting them for intervention might reduce the salience or predictive utility of the static risk factor, and hence the static risk associated with it. However, this situation has yet to be realized in practice, theory, or research. It is therefore necessary to consider the presence of static risk factors as giving rise to corresponding and commensurate static risk. As such, it is necessary to integrate static risk factors into a comprehensive violence-prevention paradigm of risk assessment.

Research Approaches

Experimental clinical trials. One approach that is methodologically sound, though pragmatically challenging, is to conduct traditional experimental clinical trials with random assignment of patients or prisoners into either the proposed intervention approach or into a treatment-as-usual (or some other) comparison group. Assignment to the experimental group could be stratified on the basis of risk level (low, moderate, or high). This stratification, recall, is made on the basis of the previously conducted risk assessment. The nature of the interventions would look somewhat different across these intracondition groups. For instance, the number of static risk factors might be greater in the high-risk group, calling possibly for more supervision-related interventions.

What would the experimental treatment look like? What is required is some sort of risk management menu of options that can be applied to persons on an idiographic basis, when appropriate. There might be a core curriculum of management and intervention strategies in order to optimize efficiency. Furthermore, as mentioned, this curriculum might vary according to initial risk level—low, moderate, and high. Within each of these treatment subgroups, the core curriculum would be applied uniformly across the treatment-level subgroup. The core curricula would differ between treatment condition subgroups likely on the basis of the number of static risk factors present, and therefore on the nature of supervision/monitoring required. In addition to this, management modules could be added on an individual basis, depending on the person's needs and the dynamic risk factors that were identified in the risk assessment. Supplemental modules would be applied in the same manner across risk levels, that is, on an as-appropriate basis.

It is important to emphasize that assignment of persons to low-, moderate-, and high-risk groups, as well as the selection of risk management/intervention strategies, is intended to flow directly from the initial risk assessment. As we described earlier, using a risk assessment measure that conforms to the structured professional judgment model of risk assessment (such as the HCR-20 risk assessment and management manuals, the EARL-20B, SVR-20, the RSVP, the SARA, or the SAVRY) ensures that a comprehensive evaluation of risk factors has been carried out. For instance, the HCR-20 violence risk assessment manual (Webster et al., 1997) and management manual (Douglas et al., 2001) provide means by which to identify static and dynamic risk factors and also to start conceptualizing intervention and management strategies. It would likely be necessary to spend time developing additional treatment strategies that are based on the dynamic risk factors. Of course, it would be most efficient to draw upon existing procedures, although there may be work to do in designing additional procedures.

Figure 1 displays a model evaluation study for this violence risk assessment prevention paradigm. Persons randomly assigned to the experimental group would first undergo a thorough risk assessment intended to identify both static and dynamic risk factors. Then these persons would be stratified according to initial risk level—low, mod-

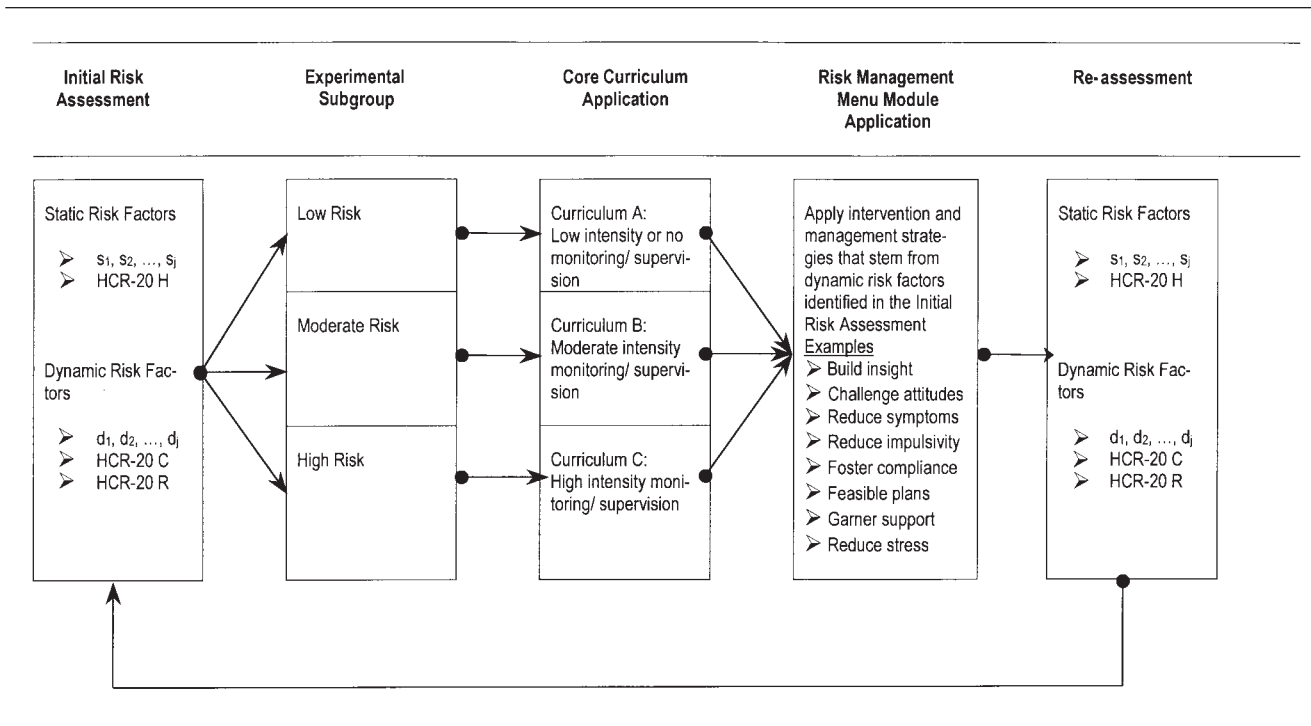


Figure 1: Model Evaluation Program for Violence Risk Assessment Prevention Paradigm (experimental/treatment group)

NOTE: HCR-20 = Historical, Clinical, Risk Management-20.

erate, or high. Research on several of the structured professional judgment measures has shown that this can be done reliably (Douglas, 2001b; Kropp & Hart, 2000) and validly (Dempster, 1998; Douglas, 2001b; Kropp & Hart, 2000). Within each of these experimental condition subgroups, a risk management program would be applied uniformly. This would likely be a sensible step to integrate concerns over static risk factors. The management strategies in place within these three subgroups could include supervision and monitoring commensurate with violence risk. Then the next step specifies that risk management modules are applied idiographically, depending upon the dynamic risk factors that were identified in the initial risk assessment. Examples are provided in Figure 1 and Table 1, although only those present in any given case would be applied in that case.⁸ We have suggested that the HCR-20 violence risk assessment and management manuals represent one possible system to specify the content of these steps. However, other systems also could be developed.

Finally, a regime for regular reassessments should be included in the model and in evaluative studies that follow the outline suggested in Figure 1. By including systematic reassessment of all the dynamic risk factors in the original risk assessment, it will be possible to both monitor those risk factors that were first present and to identify any others that have emerged. This reassessment process also would permit adjustment of intervention and management strategies on a continuing basis to keep up with any changes in the dynamic risk factors.

The control group would consist of treatment as usual to ensure that persons are receiving no fewer services than they would be in routine daily practice. It may be that the control group would receive the low-, moderate-, and high-risk-level monitoring and supervision services that the experimental group does (as indicated in the third element of the diagram in Figure 1). It would be possible, as well, to track changes in risk factors for this group as well, although withhold the experimental interventions that stem from them.

Ultimately, the outcome of interest would be the proportion of persons who behave violently in the experimental group versus the control group. Further outcomes of interest would be the median time to violence and the severity of violence. Again, as with other research recommendations in this article, the Cox proportional hazards model

would be well suited to modeling increases and decreases in the hazard function for violence, as affected by (a) experimental condition, construed as a time-independent covariate; (b) initial risk level subgroup (low, moderate, or high), also time independent; (c) changes in dynamic risk factors, modeled as time-dependent covariates; and (d) application of each intervention from the risk management menu, which also can be considered time-dependent covariates. For the time-dependent covariates, it is possible to specify not only the quantity of changes but the timing of changes. In this way, it is possible to determine whether the hazard function increases or decreases as a result of each of these covariates. As such, it provides a mechanism to determine treatment effectiveness generally of this model, as well as its constituent elements (i.e., the separate interventions from the risk management menu). This approach also would permit testing whether violence is reduced by the specific idiographic mechanism (i.e., the particular dynamic or causal risk factor) that the assessor has identified as being important.

Of course, Cox proportional hazards approaches are strong as well because they take time to violence into account and they permit the modeling of any covariate that researchers deem important to the outcome. As such, researchers could model the importance of context of violence as well as interventions because certain contexts have been shown to relate to violence (Silver, Mulvey, & Monahan, 1999).

One challenge to this design is the possible requirement of large samples in order to detect violence reductions in the experimental group compared to the control group. We acknowledge this challenge, though consider it analogous to similar challenges in treatment studies that aim to show differential effectiveness of interventions. Researchers would have to select the appropriate number of participants to ensure adequate statistical power.

Other designs. A second approach would be quasi-experimental. This procedure essentially removes the randomly assigned control group, replacing it with some comparison group that is as demographically, clinically, and criminogenically similar to the group that received the experimental treatment. The threat here is that without random assignment there may be unmeasured confounds and nuisance vari-

ables present, even after controlling statistically for any differences that emerge on measured variables.

A third approach is a within-groups ABA approach, in which a group of persons is followed without the experimental approach being applied, then during a period of time during which the treatment is applied, and again for a period of time during which the experimental treatment is withdrawn. In principle, if the treatment has an effect the rate of violence should be lower during the middle phase. A variation is an AB posttest-only design, where the treatment is not withdrawn after its application if predicted effects are observed.

A fourth approach is the case-crossover design described by Maclure and Mittleman (2000) under Step 2. That is, this design is useful not only for studying risk factors but for studying the effects of protective factors. The application of intervention strategies from the risk management menu could be defined as exposure to protective factors. The time period during which this occurred could then be compared to other time periods in which it did not occur. There is some similarity between this approach and the AB or ABA approach.

Numerous other treatment designs exist, such as multitreatment designs (different treatments are applied at different time points to the same people) and crossover designs in which experimental and control groups switch partway through the study period (Kazdin, 1992). Furthermore, dismantling or additive research strategies can be used to search for the active ingredient of treatment. We would also recommend that researchers include measures of treatment fidelity or integrity as part of intervention studies, in order to ensure that treatments are being administered as designed and intended. The effectiveness of prevention tactics for the various aspects of risk (likelihood, imminence, nature, seriousness, and frequency) also should eventually be tackled. An additional concern is the measurement of compliance with or adoption of clinical procedures should this (or any) prevention model be adopted within a facility, agency, or system. These research studies are likely far down the road in risk assessment. First, it is necessary to test the general risk assessment/prevention model. If it can be supported, then steps toward these other strategies would logically follow.

Reliability Issues⁹

We have focused on questions of validity. Of course, reliability is requisite to validity. Reliability, like validity, needs to be evaluated with respect to the conceptualization of a measure or procedure and of the intended clinical application. We would suggest that interrater reliability is of prime importance throughout the validation steps. If assessors cannot agree on the level of risk or what risk factors are present, the procedure cannot be said to be of much use. In general, reliability indices derived from classical (Cronbach's alpha, item-total correlation) or modern (item characteristic curves, threshold parameters) test theories are not as important. The risk assessment procedures and measures are not measures or tests of psychological traits or constructs, such as anxiety or depression. Violence risk (which is what one might argue is the construct) does not cause, for example, psychopathy as depression causes feelings of hopelessness. Psychopathy is not a symptom of violence risk (as hopelessness is a symptom of depression) but a risk factor for it. As such, structural reliability analyses tend not to fit the characterization of the risk assessment measures and procedures. When it comes to some risk factors, however, such analyses will be fitting (again, for psychopathy, such analyses are important, as psychopathy is conceptualized as a psychological construct or trait).

Ethical Issues

Because the overall context of this article is risk assessment, traditional ethical concerns that might arise, such as falsely describing a person as high risk and depriving his or her liberty when, in reality, he or she would not have acted violently, apply here as well. These are potential problems that arise in any risk assessment context. However, we wish to emphasize the possible ethical issues that are unique to the present discussion.

In human experimentation where the outcome is measured in terms of illness (as in the case of much psychotherapy research) or harm (as in the present case), the treatment is shown to be successful because the control group had more illness or perpetrated greater violence dur-

ing the treatment phase. If the study is successful, it has been shown to prevent illness or, in the present context, to reduce victimization through violence. For this reason, we would suggest that researchers attempt to convince administrators and clinicians in the agencies in which the research is conducted to adopt the researched clinical services after the study has ended, should hypotheses be supported. That is, we would recommend that researchers attempt to persuade policy and/or decision makers to implement the experimental condition as routine practice.

Another concern in the violence realm is that the control group receives no fewer services than it otherwise would if there were no study being conducted. It would be ethically questionable to withdraw services from, for example, forensic acquittees and place them on a wait list in the community for months or years while the study progressed, merely so they could serve as a control group. This type of research unfolds in a very real social and legal context. We have two thoughts on this issue. First, the control group should either receive treatment as usual, whatever that might be, or should receive some type of service similar to usual treatment but perhaps modified somewhat for research purposes. We believe that a violence prevention model should be tested as much as possible against existing services rather than against nothing. Our second concern, which might be academic, is that it would only be truly unethical to withdraw existing services from a control group if there was some evidence that these existing services were effective, or worked better than nothing. There are few data on the effectiveness of risk management services, particularly in forensic and civil psychiatric populations. We would err on the side of caution, however, and recommend opting for a treatment-as-usual control group.

A third issue is that the experimentation group does not receive a treatment that places them (or others) at risk. It is important that there is some basis to the expectation that the experimental services will not lead to a greater amount of violence than treatment as usual. This concern can be met through the application of the core curricula described above, which would likely be based primarily on static risk factors and could include monitoring and supervision akin to that received by the control group. The application of the interventions from the risk management menu, then, is likely what would differ between groups.

Finally, Swartz et al. (1997) have discussed ethical issues that might arise in the context of randomized clinical trials that occur in legally coercive arenas (in their case with respect to involuntary outpatient commitment [OPC]). Many of their points are apposite to the current discussion of randomized clinical trials of risk management and violence prevention strategies. That is, in OPC there was randomization to a legally coercive treatment condition, which gave rise to ethical concerns. Such concerns would also arise in the types of research studies discussed in this article to the extent that treatment was coercive. Swartz et al. (1997) also discussed the challenges posed by the possibility of impaired decision making among potential study participants and the implications that this has for informed consent. Furthermore, who has ethical responsibility in the case that something untoward occurs, the clinicians or the researchers? Swartz et al. made clear in their research that the investigators ultimately bore the burden of final ethical responsibility. Such would likely be the case in research designs discussed in this article. Furthermore, it is possible that clinicians would object to random assignment on the basis that the assigned treatment is not perceived to be optimal for their clients. Swartz et al. suggested that to avoid this problem stakeholders must be neutral about study conditions, believing that one is as effective as the other. As such, there are a number of ethical considerations that arise and require resolution as part of experimentation that unfolds within legal regimes.

CONCLUSION

Numerous conceptual and empirical strides have been made in the field of risk assessment, particularly in the previous decade. We have argued that the field would benefit from additional emphasis on prevention. This has started to occur on a conceptual level, with numerous commentators discussing the importance of risk management to the risk assessment enterprise. We proposed that a prevention-based approach to risk assessment can be characterized by the use of structured professional judgment. This entails comprehensive assessment of risk factors with scientific support and the specification of level of risk on the basis thereof. The final step is the construction of risk man-

agement and intervention strategies that flow directly from the identified risk factors. Static factors may be more relevant to determining the intensity of monitoring and supervision, whereas dynamic factors would inform the remainder of interventions on an as-needed basis. However, to date there has been little empirical progress on preventative and management efforts. This state of affairs is to be expected in that it has been necessary to develop the conceptual basis for empirical risk management and prevention efforts. We devoted considerable time to the outlining of a four-step validation procedure, with the hope of spurring research in this direction.

Ultimately, the utility of such a model will be judged on whether it improves decision making around violence risk. That is, does it lead to better management plans, ones that are suited tightly to the needs of patients and prisoners? Does this then help persons to live without being violent? In sum, does the model prevent violence? We proposed the model with the expectation and hypothesis that it will, in fact, reduce or prevent violence. The research procedures described within this article could be used to test this hypothesis.

It can also be asked whether the model improves other decisions and aspects of risk assessment, such as communication about risk. Heilbrun et al. (1999) described risk communication as the bridge between risk assessment and risk management. As such, will the model proposed in this article facilitate communication between those who assess risk and those who make decisions about management? It may, in that the model specifies level of risk, the risk factors that characterize the risk for any given individual, and the intervention strategies that stem directly from these factors. This is an empirical question.

NOTES

1. See Coccozza and Steadman (1976), Ennis and Litwack (1974), and Monahan (1981) for early research and clinical critiques, and Mathiesen (1998), Mossman (2000), and Litwack (2001) for later ones; see Ennis and Emory (1978) and Stone (1975) for earlier legal analyses, and Janus and Meehl (1997) and Melton, Petrila, Poythress, and Slobogin (1997) for later ones.

2. Hart (2001b) also has defined risk assessment as "a contingency-based action plan for what should be done in the future, not a quantitative statement of fact about what will occur in the future" (p. 12).

3. For certain risk factors (i.e., major mental illness), however, ratings by nonprofessionals are made on a provisional basis until mental health professionals can confirm them.

4. We consider prevention and management paramount in most, if not all, risk assessment contexts. Even in situations where, arguably, the prediction model may seem more apt, such as consideration for civil commitment under sexually violent predator legislation (Heilbrun, 1997), the purpose remains the prevention of violence. In these contexts, decisions may be reached that the best way to do so is through implementation of a management strategy that consists primarily, at least at the outset, of incapacitation. However, it is still necessary to gauge in these contexts the feasibility of community management and the likely success of outpatient intervention as the decision to incapacitate is, in effect, a decision that other management strategies will not be effective.

5. For reviews and academic commentary on the Historical, Clinical, Risk Management–20 (HCR-20), see Beech, 2000; Borum, 1996; Dolan and Doyle, 2000; Douglas, 2001a; Douglas, Cox, and Webster, 1999; Douglas and Webster, 1999; Edens and Otto, 2001; Mossman, 2000; Otto, 2000; Webster and Bailes, 2000; Webster, Douglas, Belfrage, and Link, 2000; Witt, 2000.

6. It should be noted that although we use the HCR-20 to illustrate our points, we do not expect that this instrument would be applicable to specialized types of violence, such as sexual violence, domestic violence, or stalking. For these types of violence, we would recommend consulting other measures. The HCR-20 was intended to be applied to risk for general violence among forensic psychiatric, civil psychiatric, and correctional populations. We also would point out that the HCR-20 is not, in fact, necessary to this model; other approaches could be developed and employed. Its use here is illustrative.

7. Hereinafter referred to as APA (American Psychological Association) test standards.

8. In Table 1, one of the prevention strategies is incarceration (aligned with the risk factor past violent behavior). This is included here because in reality incapacitation often is necessary. However, our interests in this article lie more with other risk-reduction and violence prevention strategies that are tied to dynamic rather than static risk factors.

9. We thank Stephen Hart for his ideas relating to this reliability discussion.

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