Sexual Offender Recidivism Risk

What We Know and What We Need to Know

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ABSTRACT: If all sexual offenders are dangerous, why bother assessing their risk to reoffend? Follow-up studies, however, typically find sexual recidivism rates of 10%–15% after five years, 20% after 10 years, and 30%–40% after 20 years. The observed rates underestimate the actual rates because not all offences are detected; however, the available research does not support the popular notion that sexual offenders inevitably reoffend. Some sexual offenders are more dangerous than others. Much is known about the static, historical factors associated with increased recidivism risk (e.g., prior offences, age, and relationship to victims). Less is known about the offender characteristics that need to change in order to reduce that risk. There has been considerable research in recent years demonstrating that structured risk assessments are more accurate than unstructured clinical assessments. Nevertheless, the limitations of actuarial risk assessments are sufficient that experts have yet to reach consensus on the best methods for combining risk factors into an overall evaluation.

KEYWORDS: sexual offender recidivism; risk assessment; actuarial; prediction

Sexual offenders are among those that invoke the most fear and concern: Children are warned to avoid strangers; women are afraid to go out at night. The outcry over well-publicized cases of horrific sexual crimes has led to special policies for sexual offenders, such as registries, community notification, and post-sentence detention. To the naïve public, all sexual offenders are equally dangerous. Those involved in managing sexual offenders, however, recognize considerable variability. The drunk college student who exposes himself at a party is quite different from the priest who leaves a trail of child victims as he is shuffled across parishes or the serial rapist who abducts women from the streets.

RECIDIVISM BASE RATES

The starting point for any risk assessment is the recidivism base rate. The recidivism base rate is the proportion of a group of sexual offenders who will reoffend af-
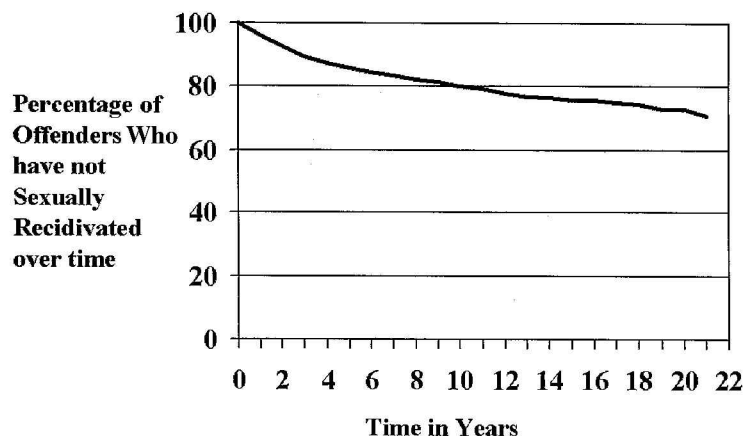
FIGURE 1. Sexual recidivism in a sample of 4724 sexual offenders over a twenty-year period.

ter a period of time (i.e., the follow-up period). If, for example, 20 out of 100 sexual offenders were reconvicted for a new sexual offence, the recidivism base rate would be 20%. This rate can be used to predict how many offenders will reoffend (e.g., 20 out of 100) as well as to estimate the probability that an individual offender will reoffend (i.e., the "typical" sexual offender has a 20% chance of reoffending).

FIGURE 1 summarizes the sexual recidivism rate in a mixed group of sexual offenders. This data set comprises 10 individual samples; the aggregated sample ($n = 4724$) is the largest presently available (Harris & Hanson, 2002). These samples range in size from 191 to 1138 offenders and were drawn from the following jurisdictions: California, Washington, Québec, Ontario, Manitoba, Alberta, Her Majesty's Prison Service (England & Wales), and the Correctional Service of Canada (3 distinct samples). Sexual recidivism was defined by a new charge in five samples and by a new conviction in the remaining five samples. The average follow-up period was seven years, with approximately 16% of the sample being followed for more than 15 years. FIGURE 1 expresses sexual recidivism as a "survival curve" (Greenhouse, Stangl & Bromberg, 1989).

As can be seen in FIGURE 1, the five-year recidivism rate was 14% (95% confidence interval of 13–15%), the 10-year recidivism rate was 20% (95% confidence interval of 19–21%), the 15-year rate was 24% (95% confidence interval of 22–26%) and the 20-year rate was 27% (95% confidence interval of 24–30%). Although the cumulative recidivism rates increase with time, the chances that an offender will eventually "recidivate" decreases the longer he remains offense-free in the community. The proportion of new recidivists was 14% in the first five years at liberty compared to only 3% during years 15 to 20.

The sexual recidivism rates for rapists (those who have offended against an adult victim) and child molesters are very similar (FIG. 2). Rapists, however, are much more likely than child molesters to recidivate with a nonsexual violent offence (Hanson & Bussière, 1998). Among child molesters, those most likely to sexually recid-
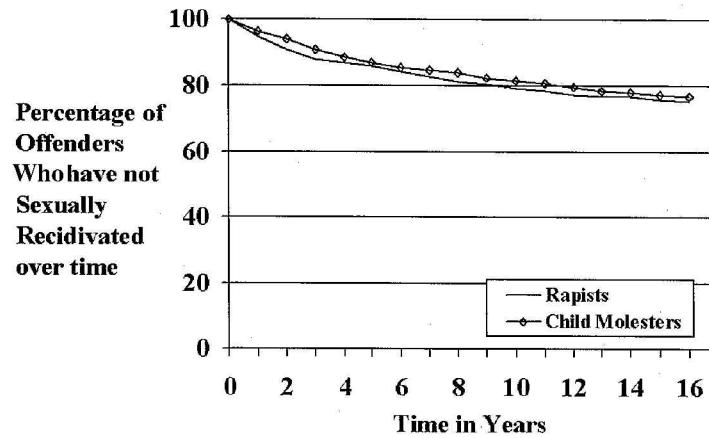
FIGURE 2. Sexual recidivism of rapists ($n = 1038$) and child molesters ($n = 2798$) over a fifteen-year period
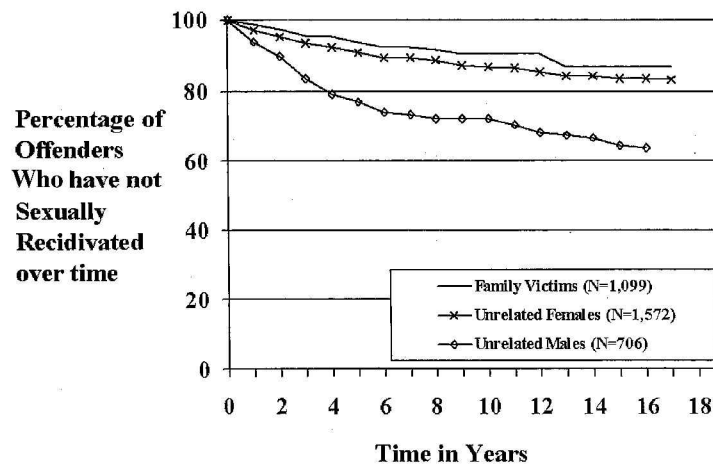

FIGURE 3. Sexual recidivism in a sample of child molesters.

ivate are those who offended against unrelated boy victims, followed by those who offended against unrelated girl victims and, finally, incest offenders (FIG. 3). Incest offenders were defined as those with victims within their own family, such as children, step-children, and nieces.

The available data suggest that most sexual offenders do not recidivate. It is important to remember, however, that many sexual offenses are never reported to police. The extent to which the undetected offenses should influence the observed recidivism rates is a matter of debate. If the typical sexual offender commits many offenses, then the observed rates should be close to the actual rates. High-frequency

TABLE 1. Predictors of sexual offence recidivism

Risk Factor	r	n (k)
Sexual deviance		
PPG sexual interest in children	.32	4853 (7)
Any deviant sexual preference	.22	570 (5)
Prior sexual offenses	.19	11,294 (29)
Any stranger victims	.15	465 (4)
Early onset	.12	919 (4)
Any related victims	.11	6889 (21)
Any boy victims	.11	10,294 (19)
Diverse sexual crimes	.10	6011 (5)
Criminal history/lifestyle		
Antisocial personality	.14	811 (6)
Any prior offenses	.13	8683 (20)
Demographic factors		
Age (young)	.13	6969 (21)
Single (never married)	.11	2850 (8)
Treatment history		
Treatment dropout	.17	806 (6)

NOTE: r is the average correlation coefficient from Hanson and Bussière (1998). k is the number of studies, and n is the total sample size.

offenders are likely to get caught, even if the probability of detection for any one offense is small. On the other hand, if the typical sexual offender commits only a few offences (e.g., 5 or less), then the observed recidivism rates would be expected to seriously underestimate the actual rates. All experts agree that the observed rates are minimal estimates, but specifying the amount of underestimation is difficult given that the phenomenon of interest is, by definition, unobservable. Nevertheless, a reasonable estimate would be that the actual recidivism rates are at least 10% to 15% higher than the observed rates (based on the assumptions that 60% (or less) of recidivists commit 5 (or fewer) new offenses over a 20-year period and that the probability of detection is 15% per offense). For example, given that the observed 20-year recidivism rate ranges from 25% to 40%, it is quite likely that the actual recidivism rates are in the range of 35% to 55%.

RISK FACTORS FOR SEXUAL RECIDIVISM

Not all sexual offenders are equally likely to reoffend. Considerable research has been conducted identifying those factors that are, and are not, predictive of sexual recidivism. Most of these studies were summarized in Hanson and Bussière's (1998) meta-analysis. This review examined 61 unique samples (making up a total of 28,972 sexual offenders), the main results of which are reported in TABLE 1. To be included in the table, each risk factor must have been examined in at least four stud-

TABLE 2. Factors unrelated to sexual offence recidivism

Risk Factor	r	n (k)
Victim empathy	.03	4670 (3)
Denial of sex offence	.02	762 (6)
Unmotivated for treatment	.01	435 (3)
General psychological problems	.01	655 (6)
Sexually abused as a child	−.01	5051 (6)
Degree of sexual contact	−.03	828 (6)

NOTE: r is the average correlation coefficient from Hanson and Bussière (1998). k is the number of studies, and n is the total sample size.

ies and have an average correlation with sexual recidivism of at least $r = .10$ (10% difference in recidivism rates for those with or without the characteristic).

The strongest predictors of sexual recidivism are factors related to sexual deviance and general criminality. Hanson and Bussière (1998) found the single biggest predictor of sexual offense recidivism was sexual interest in children as measured by phallometric assessment (penile plethysmograph or PPG). Phallometric assessment involves the direct monitoring of sexual response when viewing or listening to sexual stimuli (Launay, 1994). Other important predictors included clinical assessments of deviant sexual preferences, prior sexual offenses, and a history of selecting unrelated victims or male victims. General criminality, as measured by the total number of prior offenses and antisocial personality, is also an important risk factor. It is also worth noting that the sexual recidivists tend to be single and young (Hanson, 2001).

Hanson and Bussière (1998) also identified some characteristics not associated with sexual recidivism. Some of the findings in TABLE 2 were surprising. Clinical interviews are routinely used in risk assessment, but much of the information commonly assessed in these interviews, such as low victim empathy, denial, and lack of motivation for treatment, were unrelated to sexual offense recidivism. It may be difficult to assess sincere remorse given the obvious social pressures of the forensic setting.

COMBINING RISK FACTORS INTO AN OVERALL EVALUATION

No single risk factor is sufficient to predict whether a particular offender will reoffend or not. Consequently, all competent evaluations consider a range of factors, each of which could potentially increase or decrease the offender's recidivism potential. Offenders with all the risk factors are obviously high-risk, and those with no risk factors are low-risk, but what about the typical offender who has some risk factors?

There are several ways that individual factors can be organized into an overall evaluation. Evaluators using the *unstructured clinical* approach integrate diverse material based on theory and their experience with similar cases. In such evaluations, neither the risk factors considered nor the method of combining the risk factors are fixed, and are allowed to change from case to case. In *structured clinical* assessments, the evaluator specifies in advance the risk factors considered in the evalua-

TABLE 3. Average predictive accuracy of actuarial, empirically guided, and unstructured clinical assessments

	Average d	95% Confidence Interval	Q	Number of Findings	Total Sample Size
Actuarial	0.68	0.62–0.73	113.68***	50	7145
Empirically guided clinical	0.52	0.33–0.71	12.16*	6	703
Outlier removed	0.42	0.22–0.62	4.04	5	632
Unstructured clinical	0.28	0.14–0.42	20.93*	12	1851

$^*P < .05; ^{***}P < .001.$

tion. *Empirically guided clinical* assessments resemble structured clinical assessments in that both types of evaluation begin with an examination of an explicit list of risk factors. The distinct feature of the empirically guided clinical approach is that the risk factors considered are primarily restricted to those with empirical evidence supporting their relationship with sexual recidivism (e.g., Sexual Violence Risk–20; Boer, Wilson, Gauthier & Hart, 1997). In the empirically guided approach, the final evaluation of risk is left to the judgement of the clinician. In contrast, the *actuarial* approach not only specifies the risk factors to be considered, but also specifies the method of combining the factors into an overall evaluation (e.g., Static-99; Hanson & Thornton, 2000). The final method of evaluation, the *adjusted actuarial* approach, begins with an actuarial measure and then adjusts the estimated recidivism risk based on factors external to the actuarial scheme (e.g., Violence Prediction Scheme; Webster, Harris, Rice, Cormier & Quinsey, 1994) (TABLE 3).

Although actuarial scales have been used with general criminal populations for many years (e.g., Hoffman, 1994), actuarial scales specifically designed for sexual offenders have only recently become available (Epperson, Kaul & Huot, 1995; Hanson, 1997; Rice & Harris, 1997). Consequently, most of the early research examined clinical assessments that were either unstructured (e.g., Dix, 1976; Hall, 1988; Ryan & Miyoshi, 1990), structured (Smith & Monastersky, 1986), or empirically guided (Epperson et al., 1995). Hanson and Bussière's (1998) review of studies prior to 1996 identified only one study of an actuarial risk scale specifically designed for sexual offenders (Epperson et al., 1995). Since 1996, the research on actuarial risk scales has increased dramatically such that we are now able to identify at least 50 replication findings of sexual offender risk scales.

FIGURE 4 presents the predictive accuracy of various approaches to evaluating sexual offender recidivism risk. These studies examined sexual recidivism as the outcome criterion, typically defined as rearrest or reconviction. The results are reported in terms of Cohen's d, or the standardized mean difference (Hasselblad & Hedges, 1995). According to Cohen (1988, p. 40), d values of .80 are considered "large," d values of .50 are considered "medium," and d values of .20 are considered "small." In FIGURE 4, the d values are plotted against the inverse of their variances. The findings from studies with small samples, or few recidivists, would be expected to have more variability than the findings from large studies (i.e., a finding on the
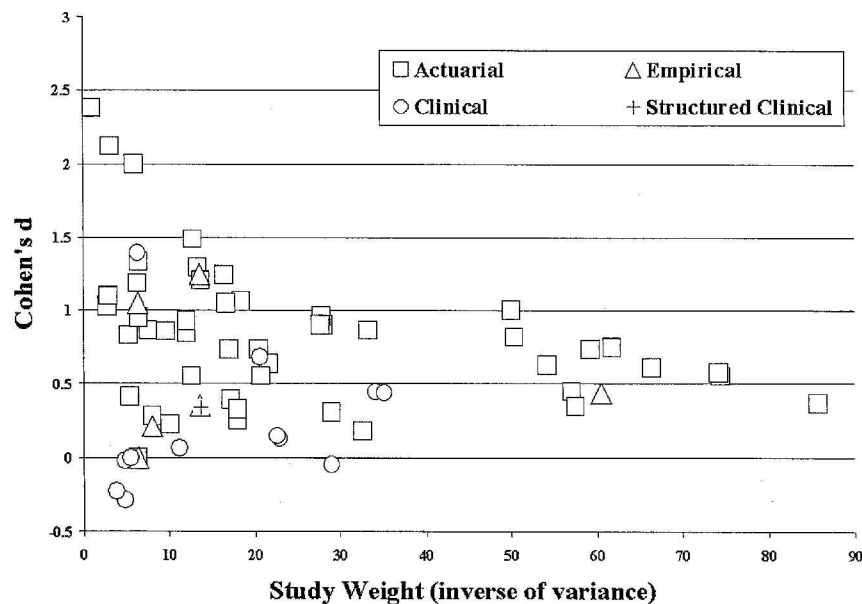
Note: only 1 case of structured clinical

FIGURE 4. Accuracy of different approaches to predicting sexual offense recidivism (k = 38, findings = 69, N = 8545).

right-hand side of the figure should be more reliable than those on the left-hand side).

Overall, actuarial risk assessments were significantly more accurate (d = 0.68, 95% confidence interval of 0.62 to 0.73) than unstructured clinical assessments (d = 0.28, 95% confidence interval of 0.14 to 0.42). The empirically guided clinical assessment had a level of predictive accuracy intermediate between the two other approaches (d = 0.52, 95% confidence interval of 0.33 to 0.71). There were relatively few tests of the empirically guided approach, however, and the findings were strongly influenced by the high level of predictive accuracy found in a single study by Dempster (d = 1.25; 1998). Removing this outlier resulted in an average predictive accuracy of d = 0.42 (95% confidence interval of 0.22 to 0.62), with a nonsignificant Q statistic indicating no more variability across studies than would be expected by chance. For comparison, a Cohen's d of 0.68 corresponds to a ROC area of 0.68 and a correlation coefficient of 0.26 (at a 20% base rate). A Cohen's d of 0.28 corresponds to a ROC area of 0.58 and a correlation coefficient of 0.11 (at a 20% base rate).

The scales with the most replication studies were the Rapid Risk Assessment for Sexual Offence Recidivism (RRASOR; Hanson, 1997), closely followed by Static-99 (Hanson & Thornton, 2000) then the Sex Offender Risk Appraisal Guide (SORAG) and the Violence Risk Appraisal Guide (VRAG; Quinsey, Harris, Rice & Cormier, 1998). We were able to locate only one or two replication studies for six other scales: Minnesota Sex Offender Screening Tool (MnSOST; Epperson et al.,

TABLE 4. Average accuracy of Static-99, RRASOR, VRAG, and SORAG for predicting sexual recidivism

	Average d	95% Confidence Interval	Q	Number of Findings	Total Sample Size
Static-99	0.76	.65 to .87	38.2***	15	4202
RRASOR	0.66	.58 to .75	41.2***	17	5004
VRAG	0.64	.50 to .79	7.65	5	1000
SORAG	0.68	.51 to .86	9.38	5	1104
Outlier removed	0.60	.42 to .78	0.39	4	1033

***$P < .001$.

1995); Minnesota Sex Offender Screening Tool–Revised (MnSOST-R; Epperson, Kaul & Hesselton, 1998); Vermont Assessment of Sex-Offender Risk (VASOR; McGrath & Hoke, 1994); Juvenile Sex Offender Assessment Protocol (J-SOAP; Prentky, Harris, Frizzell & Righthand, 2000); Violence Risk Scale: Sex Offender (VRS:SO; Wong, Olver, Wilde, Nicholaichuk & Gordon, 2000); and the Manitoba Secondary Risk Assessment (Hanson, 2002).

For the prediction of sexual recidivism, Static-99 appeared to have the greatest overall accuracy, followed closely by the SORAG, RRASOR, and VRAG (TABLE 4). The relative predictive accuracies should be interpreted cautiously, however, because the confidence intervals overlap and direct comparisons between Static-99 and SORAG have not typically found significant differences between the two measures (Barbaree, Seto, Langton & Peacock, 2001; Hanson & Thornton, 2000; Harris et al., in press; Nunes, Firestone, Bradford, Greenberg & Broom, 2002).

STATIC, STABLE, AND ACUTE RISK FACTORS

Most of the established risk factors for sexual recidivism are static, historical factors that are not amenable to deliberate intervention (e.g., prior offences, age). Such factors can be useful for evaluating long-term recidivism potential, but they provide no direction as to how to reduce that risk. Changing risk levels requires the consideration of dynamic (changeable) risk factors. Dynamic risk factors can be divided into stable and acute factors (Hanson & Harris, 2000). Stable factors tend to change slowly, over periods of months or years, or perhaps not at all. In contrast, acute factors can change rapidly, over a period of weeks, days, or even minutes. In order to understand the distinction between stable and acute risk factors, consider the differences between alcoholism (i.e., the chronic propensity to problem drinking) and intoxication. It is worth noting that certain factors can be acute risk factors, but not stable risk factors. For example, offenders with chronically negative mood are at no higher risk for recidivism than happy offenders, but both groups are at increased risk to reoffend when their mood declines (Hanson & Harris, 2000).

Interventions with sexual offenders require identifying and changing stable, dynamic risk factors. Consequently, stable dynamic risk factors are also called crim-

inogenic needs—those problematic characteristics that need to change in order to prevent reoffending. Acute risk factors are most important for community supervision—being able to anticipate an imminent offense and intervene appropriately.

Although less is known about dynamic risk factors than static risk factors, recent research suggests that certain potentially changeable factors, such as intimacy deficits and attitudes tolerant of sexual assault, provide information that is not fully captured in the existing actuarial risk scales. Hanson and Harris (2001) found that the Sex Offender Need Assessment Rating (SONAR, now revised as two scales, the Stable–2000 and Acute–2000) significantly differentiated recidivists from nonrecidivists even after controlling for scores on the VRAG and Static-99. SONAR contains items related to negative social influences, intimacy deficits, sexual self-regulation, attitudes tolerant of sexual assault, and lack of cooperation with supervision. Among child molesters in community treatment, Beech, Friendship, Erikson, and Hanson (2002) found that a questionnaire measure of "deviance" significantly predicted sexual recidivism after controlling for Static–99 scores. Beech's deviance measure addressed attitudes tolerant of sexual assault and social-affective deficits (e.g., loneliness, emotional identification with children). Similarly, Thornton (2002) found that his "initial deviance" measure also significantly predicted sexual recidivism after controlling for Static–99 scores. Thornton's (2002) initial deviance assessment included three broad domains of distorted attitudes, socio-affective functioning, and low self-control.

EFFECTS OF TREATMENT

An important question is the extent to which treatment can influence recidivism rates of sexual offenders. There are few well-controlled studies of sexual offender treatment, and even fewer studies focussing on current forms of treatment. Despite more than 35 review papers since 1990, and a review of reviews (United States General Accounting Office, 1996), researchers and policymakers have yet to reach consensus on whether treatment effectively reduces sexual recidivism.

Furby, Weinrott, and Blackshaw's (1989) narrative review of the early (largely pre-1980) treatment outcome literature concluded that there was no evidence that treatment reduced recidivism for sexual offenders. Hall's (1995) meta-analysis of 12 treatment outcome studies, which appeared after Furby et al.'s (1989) review, found a small overall treatment effect ($r = .12$). Hall concluded that medical treatment and comprehensive cognitive-behavioral treatment were both effective and superior to purely behavioral treatments.

Hall's (1995) review, however, has been criticized for including studies that compared treatment completers to treatment dropouts. Such comparisons are difficult to interpret because those who drop out of treatment would be expected to have characteristics related to recidivism risk, such as youth, impulsivity, and antisocial personality (Wierzbicki & Pekarik, 1993). When the dropout studies were removed from Hall's (1995) meta-analysis, the treatment effect was no longer significant (Harris, Rice & Quinsey, 1998).

Gallagher et al.'s (1999) meta-analysis considered 25 studies examining psychological or hormonal treatments. Like Hall (1995), they concluded that there was a significant treatment effect for cognitive-behavioral treatments. Unlike Hall (1995),

they found insufficient evidence to support medical/hormonal treatments. The apparent effectiveness of medical/hormonal treatments in Hall's (1995) review could be attributed to a single study of physical castration (Wille & Beier, 1989).

The most comprehensive review of psychological treatment for sexual offenders is that conducted by the Collaborative Outcome Data Project Committee (Hanson et al., 2002). This committee was formed in 1997 with the goals of organizing the existing outcome literature for sexual offenders and encouraging new evaluation projects to be conducted in a manner that contributes to cumulative knowledge. The first report of the Committee concluded that current psychological treatments are associated with reductions in both sexual and general recidivism. After an average 4–5 years of follow-up, 10% of the offenders in the treatment groups had sexually "recidivated" compared to 17% of the comparison groups ($n = 3,016$ from 15 studies). The reduction in general (any) recidivism was from 51% to 32%. The report also cautioned, however, that more and better research is required before firm conclusions can be reached (see Rice & Harris, this volume).

WHAT WE KNOW AND WHAT WE NEED TO KNOW

Considerable research has been conducted on the recidivism rates of sexual offenders. Overall, the observed rates are between 10% and 15% after 5 years and approximately 20% after 10 years. Given that these findings are from sufficiently large and diverse samples, new research studies are unlikely to change these estimates any time in the near future. How to interpret the observed rates, however, remains debatable given that most sexual offences never appear in official records.

Not all sexual offenders are equally likely to reoffend. Many characteristics have been reliably associated with increased recidivism risk, including prior sexual offences, deviant sexual preferences, unrelated victims, male victims, and general criminal history. As well, researchers have combined these risk factors into actuarial scales, which now have demonstrated validity for the prediction of sexual recidivism. Most of the established risk factors are static, historical characteristics. A promising development is that recent research has increasingly supported the relevance of potentially changeable characteristics, such as intimacy deficits and attitudes tolerant of sexual assault. Importantly, several studies have demonstrated that these dynamic factors provide information not captured by the existing actuarial scales.

Much, however, remains to be known. It is possible that many supposedly dynamic risk factors are actually proxies for enduring characteristics that are difficult, if not impossible, to change (e.g., intimacy deficits as a symptom of personality disorder). Further research is required that examines how changes in dynamic factors are associated with changes in recidivism risk. As it stands, evaluators have no empirically validated method for determining whether sexual offenders have benefited from treatment.

Perhaps the most contentious issue is how best to combine individual risk factors into an overall evaluation. Unguided clinical opinion is widely practiced and routinely accepted by the courts, but there is little justification for its continued use given the demonstrated superiority of structured, actuarial risk assessments. Empirically guided clinical assessments appear to have predictive accuracy intermediate between

the unguided clinical and the actuarial approaches. The empirically guided approach, however, may be the best available option for many assessment questions (such as identifying treatment targets) because the available actuarial measures do not consider enough dynamic (changeable) risk factors

Quinsey et al. (1998) argue that evaluators should use actuarial measures and only actuarial measures: any attempt to consider other information would simply dilute a valid assessment. A contrasting position (and Quinsey's previous opinion) is that evaluators should base their evaluations on actuarial measures, but be willing to adjust their assessment on the basis of risk factors external to the actuarial scheme (Webster et al., 1994). Both approaches are plausible. Evaluators using a pure actuarial approach must deliberately ignore risk factors known to be associated with the risk of recidivism. Evaluators adjusting an actuarial prediction do so without empirical justification.

For the prediction of sexual recidivism, we were unable to locate any studies that compared unadjusted versus adjusted actuarial prediction. It is interesting to note, however, that this controversy has been examined and resolved in weather forecasting: the most accurate weather forecasters are those that adjust the actuarial predictions (Swets, Dawes & Monahan, 2000). Weather forecasting is an excellent domain in which to test prediction methods because the feedback is rapid, frequent, and obvious. As well, the prediction does not influence the outcome. It is difficult to conduct research that fairly tests the contribution of professional judgement in empirically informed risk assessments (Litwak, 2001). We believe, however, that it remains a worthy challenge for researchers hoping to improve the assessment and management of sexual offenders.

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