Sexual Abuse: A Journal of Research and Treatment (© 2006)
DOI: 10.1007/s11194-006-9003-6

Evaluation of the SORAG and the Static-99 on Belgian Sex Offenders Committed to a Forensic Facility

C. Ducro[1,4] **and T. Pham**[1,2,3]

This study evaluated the convergent and predictive validity of the Sex Offender Risk Appraisal Guide *(SORAG; V. L. Quinsey, G. T. Harris, M. E. Rice, & C. A. Cormier, 1998) and the* Static-99 *(R. K. Hanson & D. Thornton, 1999, 2000) among 147 male sex offenders committed to a high-security hospital in Belgium (Centre de Défense Sociale "Les Marronniers"). Of the sample, 63.8% were child abusers (victims under 14 years of age), 24.6% were rapists (victims aged 14 years or more), and 11.5% were mixed-victim offenders (victims less than 14 years of age and victims aged 14 years or more). After an average follow-up period of 4.2 years (*SD *= 3.4 years), the sexual recidivism rate was 25.2%, the violent recidivism rate was 17.1%, and the general (any) recidivism rate was 33.1%. The SORAG and the Static-99 were moderately correlated with each other (*r *= .55), and both showed strong predictive validity for general and violent recidivism (ROC AUC's ranging from .68 to .72 for the total sample). Both instruments showed moderate predictive validity for sexual recidivism (AUC of .64 for SORAG and .66 for Static-99).*

KEY WORDS: recidivism risk; SORAG; Static-99; sex offenders.

Since the end of the 1960s, risk assessment has been a major concern in forensic psychiatry, psychology, and related fields. Hanson and Bussière (1998) pointed out that, on average, expert opinion was only slightly better than chance when used to predict sexual recidivism. Their position echoed the earlier work of

[1]Centre de Recherche en Défense Sociale, Tournai, Belgium.
[2]Centre de Recherche de l'Institut Philippe Pinel, Montréal, Canada.
[3]Université de Mons-Hainaut (UMH), Mons, Belgium.
[4]To whom correspondence should be addressed at Centre de Recherche en Défense Sociale, 94 rue Despars, 7500 Tournai, Belgium; e-mail: claire.ducro@crds.be.

Monahan (1981, 1984, 1988), which demonstrated the limits of clinical evaluations and prognoses, estimating their accuracy at no more than 33%.

Over the years, a number of instruments have been developed to predict recidivism, particularly among sex offenders. These include structured professional guidelines, such as the *Sexual Violent Risk—20* (SVR-20; Boer, Hart, Kropp, & Webster, 1997) and the *Risk for Sexual Violence Protocol* (RSVP; Hart et al., 2003), as well as actuarial instruments, such as the SORAG (*Sex Offender Risk Appraisal Guide*; Quinsey, Harris, Rice, & Cormier, 1998) and the Static-99 (Hanson & Thornton, 1999, 2000). The structured professional guidelines specify the items to consider, but the overall evaluation of risk is left to the professional judgment of the evaluator. In contrast, the actuarial instruments not only specify the items to include, but also provide explicit methods for combining these items into an overall evaluation. One limitation of the commonly used actuarial measures is that they contain only static, historical items that are not amenable to change. Nevertheless, actuarial instruments have been increasingly used in North America because of the ease of administration, and their demonstrated superiority over unstructured professional judgment (Hanson & Morton-Bourgon, 2004). The purpose of the current study was to evaluate the validity of the SORAG and the Static-99 on a sample of Belgian sex offenders committed to a forensic facility.

Sex Offender Risk Appraisal Guide (SORAG)

The SORAG was designed to predict violent and sexual recidivism among sexual offenders (Quinsey et al., 1998). It was developed through regression analyses of variables available in the clinical files and the criminal records of a large sample of sexual offenders assessed at a secure psychiatric facility. It contains 14 variables related to demographics (age and marital status), early behavior problems, psychiatric diagnoses (personality disorder and psychopathy), and criminal history.

In replication studies, the SORAG has shown moderate associations with sexual recidivism (*d* values of approximately .50) and strong associations with violent and general (any) recidivism (*d* values of approximately .80; Hanson & Morton-Bourgon, 2004). A *d* value of .50 corresponds to a correlation of .21 (assuming a 25% base rate) or an area under the Receiver Operating Characteristic curve (ROC AUC) of .64; a *d* value of .80 corresponds to a correlation of .33 or an AUC of .72 (based on formula from Hanson & Morton-Bourgon, 2004).

Although the results have been reasonably consistent across studies, Bartosh, Garby, Lewis, and Gray (2003) suggested that the predictive validity of the SORAG varied according to the type of sex offender. According to these authors, the SORAG constituted a stronger predictor of violent recidivism among child molesters than among rapists, although large associations were found for all groups. For the rapist, extrafamilial child molesters and incest offenders, the

SORAG showed moderate to large associations with general recidivism (AUC = .62–.72) and sexual recidivism (AUC = .64–.74). Bartosh et al.'s (2003) results should be interpreted with caution, however, given the relatively small sample sizes.

Static-99

The study by Hanson and Thornton (1999, 2000) was designed to predict sexual or violent recidivism among sexual offenders. It was developed using data from four sex offender populations: two forensic psychiatric facilities and two prisons. The Static-99 contains 10 items assessing demographics (age at release and relationship status), criminal history, and victim characteristics. The authors reported large predictive validity for sexual *recidivism* (AUC of .71) and violent recidivism (AUC of .69), with similar predictive validity for rapists and child molesters (.71 and .72 for sexual recidivism, and .69 and .71 for violent recidivism, respectively). There have been over 20 replication studies, with most studies finding moderate to large associations with sexual recidivism (average *d* value of .63; Hanson & Morton-Bourgon, 2004). The variability across studies, however, has been substantial. The AUC has ranged from a high value of .92 (Thornton, 2002) to a low value of .62 (Harris et al., 2003).

Similarly, the average association with violent recidivism has been moderate ($d = .57$; Hanson & Morton-Bourgon, 2004), with substantial variability across studies (e.g., Harris et al., 2003; Sjöstedt & Långström, 2001). When general recidivism is concerned, the Static-99 has shown moderate predictive power (average *d* of .52) based on eight studies (Hanson & Morton-Bourgon, 2004).

Bartosh et al. (2003) suggested that the predictive validity of the Static-99 varied according to sex offender type. According to these authors, when violent recidivism was investigated, the four risk categories of the Static-99 demonstrated good predictive power for incest offenders and extrafamilial child abusers, but only a small predictive effect for rapists. For sexual recidivism, the predictive power proved strong for incest offenders and rapists, but only moderate for extrafamilial child abusers. As for general recidivism, the predictive effect was large for extrafamilial child abusers but only moderate for both rapists and incest offenders.

The small sample size in the study of Bartosh et al. (2003) restricts any strong conclusions, but it does suggest that some of the variability across studies may be due to the composition of the samples. As with the SORAG, the variability in results could be attributed to various features of the study, such as the definition of recidivism, the length of the follow-up period, missing data, or functioning of the criminal justice system in specific jurisdictions.

Studies that examined the convergence between the SORAG and the Static-99 have found the correlation between the scales to be moderate ($r = .67$, Barbaree, Seto, Langton, & Peacock, 2001; $r = .72$, Nunes, Firestone, Bradford, Greenberg, & Broom, 2002).

The purpose of our study was to replicate previous research concerning the convergent and predictive validity of the SORAG and the Static-99 in a Belgian sample of sexual offenders. Although there have been some replications in continental Europe (e.g., de Vogel, de Ruiter, van Beek, & Mead, 2004; Sjöstedt & Långström, 2001; Stadtland et al., 2005), most of the research has been conducted in Canada, the United States, or the United Kingdom. Given that both the SORAG and the Static-99 rely heavily on existing records, it is possible that their utility would vary on the basis of the records available in specific jurisdictions. To our knowledge, this is the first study examining the validity of these measures with sexual offenders committed to a Belgian forensic psychiatric facility.

METHOD

Participants

The study included 147 male patients from a high-security psychiatric hospital in French-speaking Belgium, all of whom had committed sex offences. Their mean age was 45 years ($SD = 10.8$). The population fell into the following three subgroups: 63.8% were child abusers (victims less than 14 years of age; $M = 46.1$ years, $SD = 10.5$); 24.6% were rapists (victims aged 14 years or more; $M = 43.6$ years, $SD = 9.6$); and 11.5% were mixed-victim offenders (victims aged less than 14 years and 14 years or more; $M = 45.9$ years, $SD = 12.5$). The age of the victims was based on official information garnered from criminal records. All these forensic patients had committed an offence but were deemed to lack the capacity to control their actions. Consequently, instead of being tried and incarcerated, they were committed to a maximum-security hospital, in accordance with the Belgian Social Defense Act of 1964. These patients were arrested for a variety of sex offences, including indecent assault, offence against public decency, attempted rape, and rape. Table I summarizes the patients' characteristics on the basis of selected SORAG and Static-99 items.

Measures

Sex Offender Risk Appraisal Guide (SORAG)

The SORAG (Quinsey et al., 1998) was designed to evaluate the risk of sexual and violent recidivism in sex offenders. It comprises 14 items, 10 of which were drawn from the Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Cormier, 1993) and 4 relate specifically to the risk of recidivism in sex offenders (e.g., phallometrically determined sexual deviance score, number of previous convictions for sex offences). Most of the items can be evaluated on the basis of the

Table I. Patients' Characteristics

Patients' characteristics	%
Lived with both biological parents to age 16	49.3
Elementary school maladjustment	42.9
History of alcohol problem	55.6
Never lived with lover for at least 2 years	62.7
Personality disorder (*DSM III*)	30.1
Schizophrenia (*DSM III*)	13.4
Prior sentencing dates	
3 or less	93.2
4 or more	6.8
Prior sex offences	
None	67.6
1	19.7
2–3	9.9
≥4	2.8
Prior nonsexual violence	33.8
Prior violent offences	43.4
Victims	
Unrelated	68.7
Stranger	48.6
Male	24.6

participant's file provided it contains diagnostic information. It is also necessary to evaluate the participant's score on the Psychopathy Checklist—Revised (PCL-R; Hare, 1991) and to measure his phallometric response to deviant sexual stimuli. SORAG scores range from –27 to + 51 with an expected mean of 0. To designate risk categories, offenders are placed into one of nine equal-sized bins.

Static-99

The Static-99 (Hanson & Thornton, 1999, 2000) was designed to evaluate risk of sexual and violent recidivism in adult sex offenders presently or previously convicted of at least one sex offence. It was derived from the Structured Anchored Clinical Judgements—Minimum Criteria (SACJ-Min; Grubin, 1998) and the Rapid Risk Assessment for Sex Offence Recidivism (RRASOR; Hanson, 1997). The two instruments were combined to create the Static-99 on the observation that the predictive power of the aggregate was superior to that of either of the original scales separately.

This instrument comprises 10 static items covering participant's prior offences, offender–victim relationship, sex of victims, and demographics (age and relationship history). The items are coded from criminal history and file information. All the items, except one (number of prior sex offences), are rated 1 or 0 as a function of whether the item's criterion is present or absent. The Static-99

scores range from 0 to 12, with the following risk categories: "0–1, low," "2–3, moderate-low," "4–5 moderate-high," and "6 or more, high."

Procedure

This study used a retrospective follow-up design ($M = 4.2$ years; $SD = 3.4$). The population comprised sex offender patients released from the high-security hospital from June 1982 – June 2003. For the purpose of assessing recidivism risk, the SORAG and the Static-99 were completed on the basis of the available data contained in the files of the Hospital Registry Office. These files included their criminal record, incarceration record, nursing, psychological and psychiatric reports, and their presentencing expert evaluations. Unfortunately, the data relative to certain items of the SORAG were missing for a varying proportion of the patients: (a) prior criminal charges, "history of sexual offence against female children" and "age at index offence" (4.2%); (b) "lived with both biological parents . . .," "elementary school . . .," ". . . alcohol problems," "marital status," and diagnoses (5.6–7.6%); (c) "failure on conditional release" (8.3%); (d) PCL-R scores (66%); and (e) deviant sexual preferences as assessed through penile plethysmography (100%). The PCL-R scores were measured through the standard procedure, that is, a semi-structured interview and a review of the available file (Hare, 1991).

The SORAG total score was calculated according to the following rules: (a) items with missing data were attributed a null score; (b) SORAG protocols with more than four null scores were excluded from analyses; (c) a weighted SORAG total score was also calculated as a function of the weight of each missing item (e.g., the "psychopathy" item carries a weight of 18/91). As the weighted and non-weighted scores proved strongly correlated ($r = .99$), the latter were used in our analyses. All of the data required to complete the Static-99 were available and, consequently, no item was excluded for any of the patients.

To determine the current situation of each patient as at January 1, 2004, the following information was sought from the various Social Defense Boards: officially recognized recidivism and/or repeated commitment to a forensic facility; characteristics of victims; and dates of recidivism and/or of repeated commitment to a forensic facility.

Reliability

Two psychologists with master's degrees independently scored the SORAG and the Static-99. The single-measure Intraclass Correlation Coefficient (ICC) for the SORAG was .92 ($N = 25$; .96 for the average of two raters). For the

Static-99, however, the single-measure was only .63 ($N = 25$; .77 for the average of two raters), despite the fact that the raters had closely studied the user's manual.

Data Analyses

Predictive validity was estimated through Pearson's correlation coefficients and ROC analysis (Hanley & McNeil, 1982; Mossman, 1994; Rice & Harris, 1995) using three types of recidivism: (a) general recidivism, defined as any new offence following release or while in an institution; (b) violent recidivism, defined as offences involving overt force or threat (e.g., robbery, assault, murder, attempted murder, as well as inherently violent sex offences such as rape or indecent sexual assault with associated violence); and (c) sexual recidivism, defined as any sex offence (e.g., offence against public decency, indecent assault with or without associated violence, attempted rape, rape, noncontact sex offences).

The area on the ROC curves are the plot of the number of recidivists correctly identified (i.e., hits) and false alarms for each value of the risk prediction scale. The area under the curve spans 0 (perfect negative prediction) to .5 (random chance prediction) to 1 (perfect prediction). The AUC represents the probability of a randomly selected recidivist obtaining a higher risk score than would randomly selected non-recidivist. On the basis of Cohen (1992) and Swets (1986; equation 21), AUC values of .56 were considered "small," .64 were considered "medium," and .72 were considered "large."

RESULTS

The recidivism rates were 33.1% for general recidivism (35.4% of the child abusers, 22.6% of the rapists, and 46.7% of mixed-victim sex offenders), 17.1% for violent recidivism (16.9, 10, and 40%, respectively), and 25% for sexual recidivism (31.3, 13.3, and 26.7%, respectively). The difference between the groups should be interpreted with caution because of the small sample size of the rapist ($n = 36$) and mixed-victim offender ($n = 17$) subgroups.

The average score on the SORAG was 6.15 ($SD = 9.49$; range: -13 to 30) and 4.00 ($SD = 2.08$; range: 0–10) on the Static-99. For the SORAG, the average scores by subgroup were 5.46 ($SD = 9.19$; range: -13 to 26) for child abusers, 8.41 ($SD = 10.02$; range: -8 to 30) for rapists, and 5.45 ($SD = 8.36$; range: -8 to 20) for the mixed-victim sex offenders. For the Static-99, the average scores were 3.75 ($SD = 2.27$; range: 0–10) for the child molesters, 4.31 ($SD = 1.82$; range: 1–9) for the rapists, and 4.53 ($SD = 2.03$; range: 1–7) for the mixed offenders. The SORAG and the Static-99 presented moderate convergence ($r = .55$).

Table II. Predictive Power of the SORAG

		Total scores				Risk categories			
	n	*r*	AUC	*SE*	95% CI	*r*	AUC	*SE*	95% CI
General recidivism									
Total	135	.30**	.70**	.05	0.60–0.79	.31**	.70**	.05	0.61–0.79
Child abusers	80	.24*	.66*	.07	0.53–0.79	.26*	.68**	.07	0.55–0.80
Rapists	31	.30	.66	.12	0.44–0.89	.34	.68	.11	0.46–0.90
Sexual recidivism									
Total	133	.18*	.64*	.06	0.53–0.75	.20*	.64*	.06	0.54–0.75
Child abusers	81	.19	.65*	.07	0.52–0.78	.21	.66*	.07	0.53–0.79
Rapists	30	.21	.64	.14	0.36–0.92	.24	.65	.16	0.36–0.93
Violent recidivism									
Total	133	.24**	.72**	.05	0.62–0.82	.25**	.73**	.05	0.64–0.83
Child abusers	81	.17	.70*	.06	0.58–0.82	.17	.72**	.06	0.60–0.84
Rapists	30	.39*	.77	.19	0.40–1.15	.44*	.80	.17	0.47–1.13

*$p < .05$. **$p < .01$ level (two-tailed).

To assess predictive validity, both the total scores and the risk categories of SORAG and Static-99 were used. Both approaches yielded equivalent results for both the correlations and ROC analyses (Table II).

When the sex offender population was considered as a whole, Pearson's correlation coefficients and the AUCs suggested that the SORAG had a moderate to large association with general recidivism ($r = .30$, AUC $= .70$, 95% CI $=$ 0.61–0.79 for the total scores). The associations appeared somewhat larger for violent recidivism ($r = .24$, AUC $= .72$, 95% CI $=$ 0.62–0.82) than for sexual recidivism ($r = .18$, AUC $= .64$, 95% CI $=$ 0.53–0.75).

When each sex offender subgroup was considered separately, the association with general and sexual recidivism were similar for child molesters and the rapists (moderate). For rapists, the association with violent recidivism ($r = .39$; AUC $= .77$) appeared larger than the associations found for child molesters ($r = .17$; AUC $= .70$). Readers should remember that the sample size of rapists was small ($n = 30$), and the confidence intervals for the estimates were wide and overlapping (Table III).

When the population was considered as a whole, the Static-99 had a moderate to large association with general recidivism ($r = .32$, AUC $= .70$, 95% CI $=$ 0.61–0.80 for total scores). Static-99 also showed moderate associations with sexual recidivism ($r = .23$; AUC $= .66$, 95% CI $=$ 0.56–0.76) and violent recidivism ($r = .27$; AUC $= .68$, 95% CI $=$ 0.56–0.80).

When the sex offender groups were considered separately, the Static-99 demonstrated moderate to large associations with sexual and general recidivism for both child abusers and rapists. Static-99 appeared to predict violent recidivism more accurately for the child molesters (AUC $= .72$) than the rapists

Table III. Predictive Power of the Static-99

		Total scores				Risk categories			
	n	*r*	AUC	*SE*	95% CI	*r*	AUC	*SE*	95% CI
General recidivism									
Total population	138	.32**	.70**	.05	0.61–0.80	.33**	.70**	.05	0.60–0.79
Child abusers	78	.38**	.74**	.06	0.63–0.85	.38**	.73**	.06	0.62–0.84
Rapists	31	.38**	.79*	.09	0.62–0.96	.42	.77*	.09	0.60–0.95
Sexual recidivism									
Total population	136	.23**	.66**	.05	0.56–0.76	.24**	.66**	.05	0.56–0.76
Child abusers	79	.33**	.70**	.06	0.59–0.82	.33**	.70**	.06	0.58–0.82
Rapists	30	.15	.71	.10	0.51–0.90	.21	.67	.11	0.45–0.89
Violent recidivism									
Total population	136	.27**	.68**	.06	0.56–0.80	.24**	.67**	.06	0.54–0.80
Child abusers	79	.33**	.72**	.08	0.57–0.87	.25*	.69*	.07	0.54–0.83
Rapists	30	.25	.65	.15	0.34–0.97	.21	.70	.13	0.45–0.95

*$p < .05$. **$p < .01$ level (two-tailed).

(AUC = .65). As previously mentioned, the sample size of rapists was small and the confidence intervals for the estimates were wide and overlapping.

DISCUSSION

The purpose of this study was to evaluate the convergent and predictive validity of two actuarial instruments for assessing recidivism risk in sex offenders (SORAG and Static-99) in a Belgian forensic psychiatric sample. The correlation between the SORAG and the Static-99 was moderate, suggesting that the instrument measure overlapping, but not identical content. Overall, the SORAG and the Static-99 were moderate to strong predictors of sexual recidivism, violent recidivism, and general recidivism. Consistent with previous research, the SORAG showed stronger relationships with violent recidivism than with sexual recidivism (Hanson & Morton-Bourgon, 2004). Contrary to previous findings (Hanson & Morton-Bourgon, 2004), Static-99 was more strongly related to general recidivism than to violent or sexual recidivism, although the differences in predictive accuracy were small and nonsignificant.

When subgroups were considered, the SORAG appeared to be somewhat more accurate for rapists than for child molesters, whereas the Static-99 appeared more accurate for the child molesters than for the rapists. Readers should be cautioned, however, that the differences in predictive accuracy were not large, the sample sizes were small, and the confidence intervals for all the estimates overlapped.

The magnitude of the effects in the current study was smaller than in some findings reported in the literature (e.g., Harris et al., 2003; Thornton, 2002), but very similar to values found by averaging across all the available replication

studies. In Hanson and Morton-Bourgon's (2004) meta-analytic summary, the average association between the Static-99 and sexual recidivism was a *d* value of .63 (95% CI of 0.54–0.72; AUC of .67; 21 studies) compared to an AUC of .66 in the current study. In the Hanson & Morton-Bourgon (2004) meta-analysis, the association between the SORAG and violent nonsexual recidivism was $d = .77$ (AUC of .71) and any violent recidivism $d = .81$ (AUC of .72) compared to an AUC of .72 for the prediction of violent recidivism in the current study.

Although the current values are similar to the average values found in other studies, there is significant variation across studies (Hanson & Morton-Bourgon, 2004). The reasons for this variation is unknown, but may be related to sample composition, length of follow-up time, and the accuracy of the available information.

The association with recidivism may also be attenuated because of local policies concerning the management of sex offenders. For the current sample of high-security hospital patients, Belgian law required that they could only be released under strict conditions. Should they beach these conditions (e.g., missed psychiatric appointment, substance abuse), they can be recommitted. Consequently, it is possible that recommitment could, in certain cases, prevent recidivism in otherwise high-risk cases.

The interrater reliability for the Static-99 in the current study was only moderate, and lower than that typically found (see Appendix 8 in Harris, Phenix, Hanson, & Thornton, 2003). This relatively low reliability is at least partially related to the difficulties we faced in coding prior sex-related charges and convictions. Information concerning charges and convictions was inconsistently recorded in the hospital records; official criminal histories were not always available. The lack of attention to official criminal records is understandable given that the offenders held under the Belgian Social Defense Law are not tried and incarcerated but, rather, confined in a high-security psychiatric hospital for psychiatric and psychological treatment. Consequently, the hospital records are more likely to focus on clinical variables (familial, school, and personality data) than on official criminal history.

Furthermore, as this was a retrospective study, evaluations were conducted on the basis of old records (dating back to 1982) of former patients for whom the criminal justice data was not systematically available. In an attempt to dampen the effect of this problem on our results, we exclude from analyses all SORAG protocols for which there were four or more missing items. In recent years, the Hospital Registry Office ensures us that patient files are more thorough regarding the clinical and criminal justice data they contain. Better-quality files will allow better coding of these risk assessment scales in the future.

For use in Belgian forensic facilities, the Static-99 presented several limitations apart from the difficulty extracting the necessary information. Though it may be easy, fast, and cheap to use given that evaluations can be completed exclusively on the basis of a participant's official records, the instrument can come

across as simplistic. Hanson and Thornton (1999) themselves suggested that dynamic factors (e.g., intimacy problems, sexual preoccupations, and anger) would enhance its predictive power (see Beech, Fisher, & Thornton, 2003). In contrast to the Static-99, the SORAG contained a wider range of clinical variables (e.g., psychopathy, early child maladjustment, alcohol problems), which fit more closely with the concerns of the forensic hospital setting.

In conclusion, our data does not indicate that evaluations of recidivism risk should be based on any one type of instrument. Instead, we recommend that evaluators consider multiple measures, bearing in mind the strengths and weaknesses of each instruments used, and the characteristics of the population to which it is applied (e.g., sex offender type; offender personality type; Boer, 2004).

ACKNOWLEDGMENTS

This study was made possible thanks to the financial support of the Ministère de la Région Wallonne, "Santé et Affaires Sociales" and the STOP Program of the European Commission (Project no. 125). We thank Adèle Claix and Marjorie Menghini for all their support.

REFERENCES

Barbaree, H. E., Seto, M. C., Langton, C. M., & Peacock, E. J. (2001). Evaluating the predictive accuracy of six risk assessment instruments for adult sex offenders. *Criminal Justice and Behavior*, *28,* 490–521.

Bartosh, D. L., Garby, T., Lewis, D., & Gray, S. (2003). Differences in the predictive validity of actuarial risk assessments in relation to sex offender type. *International Journal of Offender Therapy and Comparative Criminology*, *47,* 422–438.

Beech, A. R., Fisher, D. D., & Thornton, D. (2003). Risk assessment of sex offenders. *Professional Psychology: Research and Practice*, *34,* 339–352.

Boer, D. P. (2004). *Risicotaxatie bij seksueel delinquenten* [Sex offender risk assessment]. October 11, 2004, Professional Development Day, Université d'Anvers.

Boer, D. P., Hart, S. D., Kropp, P. R., & Webster, C. D. (1997). *Manual for the Sexual Violence Risk—20: Professional guidelines for assessing risk of sexual violence*. Canada: The Mental Health, Law, and Policy Institute, Simon Fraser University.

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

de Vogel, V., de Ruiter, C., van Beek, D., & Mead, G. (2004). Predictive validity of the SVR-20 and Static-99 in a Dutch sample of treated sex offenders. *Law and Human Behavior*, *28,* 235–251.

Grubin, D. (1998). *Sex offending against children: Understanding the risk*. Police Research Series, Paper 99. London: Home Office.

Hanley, J. A., & McNeil, B. J. (1982). The meaning and use of the area under a Receiver Operating Characteristics (ROC) curve. *Radiology*, *148,* 839–843.

Hanson, R. K. (1997). *The development of a brief actuarial risk scale for sexual offense recidivism* (User Report no. 97.04). Ottawa: Department of the Solicitor General of Canada.

Hanson, R. K., & Bussière, M. T. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism studies. *Journal of Consulting and Clinical Psychology*, *66,* 348–362.

Hanson, R. K., & Morton-Bourgon, K. (2004). *Predictors of sexual offender recidivism: An updated meta-analysis* (User Report no. 02). Ottawa: Department of the Solicitor General of Canada.

Hanson, R. K., & Thornton, D. (1999). *Static-99: Improving actuarial risk assessments for sex offenders* (User Report no. 02). Ottawa: Department of the Solicitor General of Canada.

Hanson, R. K., & Thornton, D. (2000). Improving risk assessments for sex offenders: A comparison of three actuarial scales. *Law and Human Behavior*, *24,* 119–136.

Hare, R. D. (1991). *The Hare Psychopathy Checklist—Revised*. Toronto: Multi-Health Systems.

Harris, A., Phenix, A., Hanson, R. K., & Thornton, D. (2003). *Static-99 coding rules: Revised 2003*. Ottawa, Canada: Public Safety and Emergency Preparedness.

Harris, G. T., Rice, M. R., & Cormier, C. A. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior*, *20,* 315–335.

Harris, G. T., Rice, M. E., Quinsey, V. L., Lalumière, M. L., Boer, D., & Lang, C. (2003). A multisite comparison of actuarial risk instruments for sex offenders. *Psychological Assessment*, *15,* 413–425.

Hart, S. D., Kropp, P. R., Laws, D. R., Klaver, J., Logan, C., & Watt, A. (2003). *The Risk for Sexual Violence Protocol (RSVP). Structured professional guidelines for assessing risk for sexual violence*. Canada: Mental Health, Law and Policy Institute, Simon Fraser University.

Monahan, J. (1981). *The clinical prediction of violent behaviour*. Washington, DC: Government Printing Office.

Monahan, J. (1984). The prediction of violent behavior: Toward a second generation of theory and policy. *American Journal of Psychiatry*, *141,* 10–15.

Monahan, J. (1988). Risk assessment of violence among the mentally disordered: Generating useful knowledge. *International Journal of Law and Psychiatry*, *11,* 249–257.

Mossman, D. (1994). Assessing predictions of violence: Being accurate about accuracy. *Journal of Consulting and Clinical Psychology*, *62,* 783–792.

Nunes, K. L., Firestone, P., Bradford, J. M., Greenberg, D. M., & Broom, I. (2002). A comparison of modified versions of the Static-99 and the Sex Offender Risk Appraisal Guide. *Sexual Abuse: A Journal of Research and Treatment*, *14,* 253–267.

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

Rice, M. E., & Harris, G. T. (1995). Violent recidivism: Assessing predictive validity. *Journal of Consulting and Clinical Psychology*, *63,* 737–748.

Sjöstedt, G., & Långström, N. (2001). Actuarial assessment of sex offender recidivism risk: A cross-validation of the RRASOR and the Static-99 in Sweden. *Law and Human Behavior*, *25,* 629–645.

Stadtland, C., Hollweg, M., Kleindienst, N., Dietl, J., Reich, U., & Nedopil, N. (2005). Risk assessment and prediction of violent and sexual recidivism in sex offenders: Long-term predictive validity of four risk assessment instruments. *Journal of Forensic Psychiatry and Psychology*, *16,* 92–108.

Swets, J. A. (1986). Indices of discrimination and diagnostic accuracy: Their ROCs and implied models. *Psychological Bulletin*, *99,* 100–117.

Thornton, D. (2002). Constructing and testing a framework for dynamic risk assessment. *Sexual Abuse: A Journal of Research and Treatment*, *14,* 137–151.