

Predicting Relapse: A Meta-Analysis of Sexual Offender Recidivism Studies

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Evidence from 61 follow-up studies was examined to identify the factors most strongly related to recidivism among sexual offenders. On average, the sexual offense recidivism rate was low (13.4%; $n = 23,393$). There were, however, subgroups of offenders who recidivated at high rates. Sexual offense recidivism was best predicted by measures of sexual deviancy (e.g., deviant sexual preferences, prior sexual offenses) and, to a lesser extent, by general criminological factors (e.g., age, total prior offenses). Those offenders who failed to complete treatment were at higher risk for reoffending than those who completed treatment. The predictors of nonsexual violent recidivism and general (any) recidivism were similar to those predictors found among nonsexual criminals (e.g., prior violent offenses, age, juvenile delinquency). Our results suggest that applied risk assessments of sexual offenders should consider separately the offender's risk for sexual and nonsexual recidivism.

Assessing chronicity is crucial for clients whose sexual behaviors have brought them into conflict with the law. Many exceptional criminal justice policies, such as postsentence detention (e.g., Anderson & Masters, 1992), lifetime community supervision, and community notification, target those sexual offenders likely to reoffend. Clinicians need to judge whether the client's behaviors are truly atypical of the individual (as the client would like us to believe) or whether the client merits a virtually permanent label as a sexual offender.

Sexual assault is a serious social problem, with high victimization rates among children (10% of boys and 20% of girls; Peters, Wyatt, & Finkelhor, 1986) and adult women (10–20%; Johnson & Sacco, 1995; Koss, 1993a). Given the large number of victims, it is not surprising that a significant portion (10–25%) of male community samples (e.g., university students, hospital staff) admit to sexual offending (Hanson & Scott, 1995; Lisak & Roth, 1988; Templeman & Stinnett, 1991).

One of the simplest and most defensible approaches to recidivism prediction is to identify a stable pattern of offending. Behavior is influenced by a variety of internal and external factors that can and do change over the life course. Nevertheless, it does not require any special expertise to predict with confidence

the continuation of any behavior that has occurred frequently, in many different contexts, and despite the best efforts to stop it.

Some sexual offenders report a well-established, chronic pattern of offending (e.g., Abel, Becker, Cunningham-Rathner, Rouleau, & Murphy, 1987). More typically, however, sexual offenders deny recurrent deviant sexual interests or behavior (Kennedy & Grubin, 1992; Langevin, 1988). In the absence of an established pattern, risk assessments need to rely on other, relevant information. Determining what is "relevant" requires theoretical assumptions about the nature of sexual offending.

One approach is to assume that sexual offending is similar to other criminal behavior. The typical criminal commits a variety of offenses (e.g., theft, assault, drugs) with relatively little specialization (M. R. Gottfredson & Hirschi, 1990). Because many sexual offenders also engage in nonsexual criminal activities (Broadhurst & Maller, 1992; Hanson, Scott, & Steffy, 1995), the same factors that predict general recidivism among nonsexual criminals may also predict sexual recidivism among sexual offenders.

The extensive research on the prediction of recidivism among nonsexual criminals (Champion, 1994; D. M. Gottfredson & Tonry, 1987) has identified a reliable set of both static (historical) and dynamic (changeable) risk factors (e.g., Bonta, 1996; Gendreau, Little, & Goggin, 1996). Specifically, the persistent criminal tends to be young, have unstable employment, abuse alcohol and drugs, hold procriminal attitudes, and associate with other criminals (Gendreau et al., 1996). These characteristics can be considered to define a "criminal lifestyle," a concept similar to *Diagnostic and Statistical Manual of Mental Disorders's* (4th edition) "antisocial personality" (American Psychiatric Association, 1994), Hare's "psychopathy" (Hare et al., 1990), and M. R. Gottfredson and Hirschi's (1990) "lack of self control."

Some evidence, however, suggests that sexual offending may be different from other types of crime. Although sexual offenders frequently commit nonsexual crimes, nonsexual criminals

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rarely recidivate with sexual offenses (Bonta & Hanson, 1995b; Hanson et al., 1995). As well, many persistent sexual offenders are judged to be low risk by scales designed to predict general criminal recidivism (Bonta & Hanson, 1995b).

Rather than emphasizing general criminological risk factors, sexual offender risk assessments may concentrate on sexual deviance. All sexual offending is, by definition, socially deviant, but not all sexual offenders have deviant sexual interests or preferences. Some date rapists, for example, may prefer consensual sexual activities but misperceive their partners' sexual interest (e.g., "'No' means 'yes'") (Hanson & Scott, 1995; Malamuth & Brown, 1994). In contrast, the sexual lives of some boy-object pedophiles may be completely focused on their preferred victim type (Freund & Watson, 1991; Quinsey, 1986).

Because self-reports are highly vulnerable to self-presentation biases, the assessment of deviant sexual interest is best supplemented by other sources of information, such as a sexual offense history and phallometric assessment (i.e., direct monitoring of penile response; see Launay, 1994). In general, offenders with the most deviant sexual histories tend to show deviant or abnormal sexual interests on phallometric assessments (Barbaree & Marshall, 1989; Freund & Watson, 1991; Quinsey, 1984, 1986). Specifically, deviant sexual interests are most prevalent among those who victimize strangers, use overt force, select boy victims, or select victims much younger (or much older) than themselves (Barbaree & Marshall, 1989; Freund & Watson, 1991; Quinsey, 1984, 1986).

A further consideration in the assessment of sexual offenders concerns symptoms of general psychological maladjustment. Sexual offenders rarely meet diagnostic criteria for major mental illnesses, but they often show signs of low self-esteem, substance abuse problems, and assertiveness deficits (W. L. Marshall, 1996). Much of the current treatment and theory concerning sexual offending emphasizes poor coping strategies and negative emotional states as precursors to offending (Laws, 1989, 1995; Pithers, Beal, Armstrong, & Petty, 1989). There have been few attempts, however, to examine empirically the relevance of these psychological symptoms to sexual recidivism. Empirically examining the assumed relationship between distress and sexual offending is important because, for nonsexual recidivism, subjective distress has either no relationship or a negative relationship with recidivism (Gendreau et al., 1996).

Once detected, sexual offenders' motivation to change may also be related to recidivism. Those offenders who accept responsibility, express remorse, and comply with treatment (good clinical presentation) should be at lower risk than those who deny any problems and actively resist change (poor clinical presentation). Motivation to change is difficult to assess, however, because there are clear benefits to "appearing" willing to change, and many sexual offenders have the social skills necessary to gain the confidence of sympathetic clinicians.

In agreement with Furby, Weinrott, and Blackshaw (1989), we believe that group comparisons within follow-up studies provide "by far the best sources of data" for the identification of recidivism risk factors (Furby et al., 1989, p. 27). The absolute recidivism rates vary across studies as a result of differences in follow-up periods, definitions, and local criminal justice practices. These factors are controlled, however, when the recidivist-

nonrecidivist comparisons are made within a single follow-up study.

Previous narrative reviews have examined a small number of studies and risk factors (Furby et al., 1989; Hall, 1990; Quinsey, Lalumière, Rice, & Harris, 1995). Their conclusions have been tentative and, at times, contradictory. Rapists were considered high risk by Furby et al. (1989) but not by Hall (1990) or Quinsey, Lalumière, et al. (1995). Quinsey, Lalumière, et al. (1995) did, however, report that general criminality (nonsexual offenses) and sexual deviancy (prior sex offences, phallometric assessments) predicted sexual recidivism. None of the previous reviews have considered general psychological adjustment or clinical presentation variables as predictors.

The present study provides a quantitative review of the sexual offender recidivism literature. All the participants were sexual offenders, but we examined three types of recidivism: sexual, nonsexual violent, and general (any). Sexual and nonsexual violent recidivism were considered separately, because preliminary evidence suggested that they may be predicted by different sets of characteristics (Hanson et al., 1995; Marques, Nelson, West, & Day, 1994). Quantitative summaries, or meta-analyses, have become a standard feature of research reviews in psychology and medicine (Rosenthal, 1995; Spitzer, 1995). Meta-analyses have several advantages over the traditional narrative forms of review: (a) Many studies can be considered simultaneously; (b) large, pooled samples yield high statistical power; (c) numerical estimates indicate the relative magnitude of effects; and (d) the generalizability of findings across studies can be tested.

It was expected that the best predictor of sexual offense recidivism would be a history of sexual deviancy. On the basis of previous reviews (Quinsey, Lalumière, et al., 1995), it was also expected that criminal lifestyle variables would be related to both sexual and nonsexual recidivism. The relevance of the other factors, namely, psychological symptoms and clinical presentation, was less clear. Psychological symptoms have been unrelated to recidivism among general criminal populations (Gendreau et al., 1996), but sexual offending may be a special case. The clinical presentation variables may also have little predictive value given the difficulty identifying sincere remorse and genuine motivation to change as well as the active debate concerning the efficacy of treatment for sexual offenders (W. L. Marshall & Pithers, 1994; Quinsey, Harris, Rice, & Lalumière, 1993).

Method

Sample

Computer searches of both PsycLIT and the National Criminal Justice Reference System were conducted using the following key terms: sex(ual) offender, rape, rapist, child molester, pedophile, pedophilia, exhibitionist, exhibitionism, sexual assault, incest, voyeur, frotteur, indecent exposure, sexual deviant, paraphilia(c), predict, recidivism, recidivist, recidivate, reoffend, reoffense, relapse, and failure. Reference lists were searched for additional articles. Finally, letters were sent to 32 established sexual offender researchers requesting overlooked or as yet unpublished articles or data.

To be included, studies needed to follow up a sample of sex offenders; report recidivism information for sexual offenses, nonsexual violent offenses, or any reoffenses; and include sufficient statistical information to calculate the relationship between a relevant offender characteristic

and recidivism. Further description of the selection criteria can be found in Hanson and Bussière (1996) and in the complete coding manual, which is available on request from the authors.

As of December 31, 1995, our search yielded 87 usable documents (e.g., published articles, books, government reports, unpublished program evaluations, conference presentations). When the same data set was reported in several articles, all the results from these articles were considered to come from the same study. Consequently, the 87 documents represent 61 different studies (country of origin: 30 United States, 16 Canada, 10 United Kingdom, 2 Australia, 2 Denmark, 1 Norway; 45% unpublished; produced between 1943 to 1995, with median of 1989; mean sample size of 475, median of 198, range of 12–5,000).

Most of the studies examined mixed groups of adult sexual offenders (55 mixed offense types, 6 child molesters only; 52 samples of adults, 6 adolescents only; 3 both adolescents and adults). The offenders came from institutions (48%), the community (25%), or both (27%). Nineteen studies focused exclusively on correctional samples, 11 on samples from secure mental health facilities, and the remaining from other sources (private clinics, courts, mixture of sources). Approximately one half of the samples (48%) were from sexual offender treatment programs. When demographic information was presented, the offenders were predominantly Caucasian (27 of 28 studies) and of lower socioeconomic status (27 of 29 studies).

The most common measures of recidivism were reconviction (84%), arrests (54%), self-reports (25%), and parole violations (16%). Multiple indexes of recidivism were used in 27 of 61 studies (44%). The most common sources of recidivism information were national criminal justice records (41%), state or provincial records (41%), records from treatment programs (29%), and self-reports (25%). Other sources (e.g., child protection records) were used in 25% of the studies. In 43% of the studies, multiple sources were used. In 15 studies, the source of the recidivism information was not reported. The reported follow-up periods ranged from 6 months to 23 years (median = 48 months; mean = 66 months).

Quality of Studies

An important concern in meta-analytic reviews is the quality of the studies reviewed. This issue was less of a concern in the current review, however, because all studies used the best available design (i.e., the matched, longitudinal follow-up design; Furby et al., 1989). Nevertheless, variation in the assessment of the predictor variables and of recidivism could affect the results. In most cases, the predictor variables were sufficiently explicit that there was little concern about reliability or validity (e.g., age, criminal history, victim type). There was, however, enough variability in the recidivism measures to justify further analysis. Consequently, the thoroughness of the recidivism search was coded for each study using a 7-point scale ranging from (1) *questionable methods* (e.g., mail-in questionnaires only)/*inadequate follow-up periods* (<6 months) to (7) *multiple, credible data sources* (e.g., local and national records, collateral sources)/*long follow-up periods* (>10 years). Each study was rated by the two authors, and differences were resolved by discussion. In a sample of 20 independent ratings, the rater reliability was .72, using equation ICC(2,1) from Shrout and Fleiss (1979).

The ratings of the adequacy of the recidivism information ranged from 3 to 7 ($M = 4.6$, $SD = 1.0$), indicating overall acceptable levels of diligence in identifying recidivists. No studies used only self-report or wholly inadequate recidivism detection methods.

Coding Procedure

Each document was coded separately by R. Karl Hanson and Monique T. Bussière using a coding manual. When disagreement occurred, most involved calculation errors that were immediately corrected. In rare

cases of differences of interpretation, advice was sought from colleagues familiar with forensic meta-analytic reviews.

Only one finding of each type of predictor variable was coded from any one study (data set). Given several related variables, the variable that best represented the category was selected first (e.g., for the category of "any prior sex offenses," "all prior sex offenses" was selected before "prior child molesting offenses"). Next, given conceptually equivalent findings, the selection was based on sample size and completeness of information. Finally, in those rare cases in which several options remained, we simply selected the median value. Further details on the coding and selection procedure are available in the coding manual.

To illustrate the coding procedure, Rice, Harris, and Quinsey (1990; Rice, Quinsey, & Harris, 1991; Quinsey, Rice, & Harris, 1995) reported on the relationship between age and recidivism in at least three studies from the same setting (Mental Health Centre, Penetanguishene, Ontario). One study examined rapists ($n = 54$; Rice et al., 1990), another examined child molesters ($n = 136$; Rice et al., 1991), and a third examined the combined sample ($n = 178$; Quinsey, Rice, & Harris, 1995). We only used the findings from Quinsey, Rice, and Harris (1995; Table 2) because it was based on the largest sample size and the longest follow-up period.

Even though each study could contribute only one finding per predictor, studies frequently reported on more than one predictor variable. Consequently, it is possible that the correlations within each study are themselves correlated. Although we ignored these potential intercorrelations, the major consequence of this approach was to make the test of differences between predictors conservative. Given that the sample sizes were generally large, the potential loss of a small amount of statistical power was of little concern.

Index of Predictive Accuracy

Predictive accuracy was calculated using r because it is readily understood and the statistical procedures for aggregating r s are well documented (Hedges & Olkin, 1985; Rosenthal, 1991). The magnitude of a correlation can be interpreted as an approximation of the percentage difference in recidivism rates between offenders with or without a particular characteristic (Farrington & Loeber, 1989; Rosenthal, 1991). If, for example, the overall recidivism rate was 25% and "blue eyes" correlated .20 with recidivism, there would be a 20 percentage point difference in the rates between the groups (35% blue eyed vs. 15% non-blue eyed). Except with extreme distributions, this span of 20 percentage points should be centered around the base rate (i.e., 25 ± 10 percentage points).

Formulas for converting study statistics (F , t , significance levels) into r were drawn from Rosenthal (1991). The correlations were calculated from the most direct data available. If a study reported both the raw frequencies and a chi-square, for example, the correlation was calculated from the raw frequencies. "Nonsignificant" findings were assigned an r value of 0 (7.3% of findings). For five studies (Bonta & Hanson, 1995a; Hanson, Steffy, & Gauthier, 1993b; Proulx, Pellerin, McKibben, Aubut, & Ouimet, 1995; Reddon, 1995; Thornton, 1995), the correlations were calculated directly from the original raw data sets. Some of the information from these unpublished data sets have been reported previously (Bonta & Hanson, 1995b; Hanson et al., 1995; Hanson, Steffy, & Gauthier, 1992, 1993a; Proulx et al., 1997; Studer, Reddon, Roper, & Estrada, 1996).

Aggregation of Findings

Two methods were used to aggregate findings. The first was the median r value across studies. Median values have been recommended for meta-analysis (Slavin, 1995) because they are relatively insensitive to outliers and are easy to calculate and interpret. On the other hand, statistics for estimating the variability of median values are not readily available. Median values do not take into account factors that may influence the

results, such as recidivism base rates and sample size. Consequently, a second method (the weighted averaged r) was also used.

Before averaging, each correlation was corrected for differences in recidivism base rates using formula 12:8 from Ley (1972). Because correlations decrease predictably with reductions in variance (i.e., base rates), the correction increased the size of the correlations from studies with relatively low recidivism rates and decreased the correlations from studies with high recidivism rates. The resulting r values were aggregated using the standard procedures recommended by Hedges and Olkin (1985). Details of the formulas used are available in Hanson and Busière (1996).

Generalizability of Findings

Hedges and Olkin's (1985) formulas were used to create confidence intervals as a measure of the error in estimation. Specifically, there is a 1-in-20 chance that the true value is outside the bounds of the 95% confidence interval. Confidence intervals contain all the information of traditional null hypothesis testing and allow for multiple comparisons while limiting the overall Type I error rate to 5% (Schmidt, 1996).

Variability across studies was indexed by Hedges and Olkin's (1985) Q statistic. The Q statistic is distributed as a chi-square with $k - 1$ degrees of freedom, where k is the number of studies. A finding was considered an outlier if (a) it was an extreme value (highest or lowest), (b) the Q statistic was significant, and (c) it accounted for more than 50% of the value of the Q statistic. When an outlier was detected, the results were reported with and without the exceptional case.

Maletzky's study (1991, 1993) requires special mention as an outlier. Given his large sample size (4,381–5,000), even small deviations from the other studies could be statistically significant. As well, he used an unusually broad definition of recidivism (including "treatment failure" along with new sexual offenses). Rather than eliminate Maletzky's study a priori, it was considered to be an outlier only when justified according to the empirical rules mentioned previously.

Results

The 61 studies provided information on 28,972 sexual offenders, although sample sizes were smaller for any particular analysis. On average, the sex offense recidivism rate was 13.4% ($n = 23,393$; 18.9% for 1,839 rapists and 12.7% for 9,603 child molesters). The average follow-up period was 4 to 5 years. The recidivism rate for nonsexual violence was 12.2% ($n = 7,155$), but there was a substantial difference in the nonsexual violent recidivism rates for the child molesters (9.9%; $n = 1,774$) and the rapists (22.1%; $n = 782$). When recidivism was defined as any reoffense, the rates were predictably higher: 36.3% overall ($n = 19,374$), 36.9% for the child molesters ($n = 3,363$), and 46.2% for rapists ($n = 4,017$). These averages should be considered cautiously because they are based on diverse methods and follow-up periods, and many sexual offenses remain undetected (Bonta & Hanson, 1994).

How to Read the Tables

The recidivism predictors are presented separately for sexual recidivism (Table 1), nonsexual violent recidivism (Table 2), and general (any) recidivism (Table 3). Only predictor variables examined in at least three studies are presented. The primary consideration when estimating the importance of a risk predictor is the size of its correlation with recidivism, as indicated by the median r values and the weighted average (r_+). For the predic-

tion of sexual offense recidivism, correlations greater than .30 would be considered large (recidivism rate differences of 30%), correlations greater than .20 moderate, and correlations in the .10 to .20 range small. Correlations less than .10 would have little practical utility in most settings.

The most reliable findings are those that have low variability across studies. If Q is significant, the variability is greater than would be expected by chance. It is important to remember, however, that with large samples sizes (greater than 1,000) small differences between studies can result in statistically significant Q values. Another check on the variability across studies is the similarity between the weighted average (r_+) and the median. When the median and mean suggest substantially different interpretations, then neither result should be considered reliable.

In general, the larger the sample size, the more closely the observed estimates should approximate population values. The influence of sample size is shown in the size of the 95% confidence intervals (the smaller, the better). When the confidence interval does not contain zero, it is equivalent to being statistically significant at $p < .05$, two-tailed. When the confidence intervals for two predictor variables do not overlap, they can be considered statistically different from each other.

Predictors of Sexual Offense Recidivism

Of the demographic variables, only age (young) and marital status (single) were related to sexual offense recidivism. The effects were small but replicated across many studies. Employment instability and low social class predicted treatment failure only in Maletzky's (1993) study, but his study used an unusually broad measure of failure.

Criminal lifestyle variables appeared to be reliable, although modest, predictors of sexual offense recidivism. The largest of these predictors were antisocial personality disorder ($r_+ = .14$) and the total number of prior offenses ($r_+ = .13$).

Many of the sexual criminal history variables showed small to moderate correlations with recidivism. The risk for sexual offense recidivism was increased for those who had prior sexual offenses (.19), had victimized strangers, had an extrafamilial victim, began offending sexually at an early age, had selected male victims, or had engaged in diverse sexual crimes. Neither the degree of sexual contact, or force used, nor injury to victims were significant predictors of sexual offense recidivism.

The strongest predictors of sexual offense recidivism were measures of sexual deviancy. Sexual interest in children as measured by phallometric assessment was the single strongest predictor found in the meta-analysis ($r_+ = .32$). Related predictors included phallometric assessment of sexual interest in boys as well as any deviant sexual preference (assessed by diverse methods). Phallometric assessments of sexual interest in rape, however, were not related to recidivism. The Minnesota Multiphasic Personality Inventory (MMPI) Masculinity-Femininity scale (Hathaway & McKinley, 1983) was a significant predictor, but this finding was based on only three studies ($n = 239$).

Failure to complete treatment was a moderate predictor of sexual offense recidivism ($r_+ = .17$). None of the other clinical presentation variables, such as denial or clinical ratings of low treatment motivation, were related to recidivism, except in Maletzky (1993).

Table 1
Predictors of Sexual Recidivism

Variable	<i>Mdn</i>	<i>r_s</i>	95% CI	<i>Q</i>	<i>n^a</i>
Demographic factors					
Age	-.09	-.13	-.11-.15	51.62***	6,969 (21)
With outlier	-.08	-.10	-.08-.12	111.77***	8,184 (22)
Single (never married)	.11	.11	.07-.15	9.62	2,850 (8)
Married (currently)	-.08	-.09	-.05-.13	14.14	2,828 (10)
Employment instability	.07	.07	.00-.14	3.56	762 (5)
With outlier	.07	.39	.36-.42	106.64***	5,143 (6)
Social class (low)	.00	.05	.00-.10	1.28	1,622 (6)
With outlier	.01	.20	.17-.23	54.98***	6,003 (7)
Low education	.00	-.03	-.07-.01	12.61*	2,304 (7)
Minority race	.00	.00	-.04-.04	13.02*	2,505 (7)
General criminality (nonsexual)					
Antisocial personality disorder	.17	.14	.07-.21	2.29	811 (6)
With outlier	.16	.09	.05-.13	6.41	2,113 (7)
Prior offenses (any/nonsexual)	.12	.13	.11-.15	44.31***	8,683 (20)
MMPI 4: Psychopathic Deviate	.10	.10	.00-.20	2.45	393 (4)
Admissions to corrections	.08	.09	.03-.15	6.50	1,074 (4)
Juvenile delinquency	.06	.07	.02-.12	8.20	1,486 (7)
Prior violent offenses	.01	.05	.00-.10	11.55*	1,421 (6)
Prior nonviolent offenses	-.02	.00	-.08-.08	4.73	685 (3)
Sexual criminal history					
Prior sex offenses	.19	.19	.17-.21	81.25***	11,294 (29)
With outlier	.20	.29	.27-.31	513.77***	15,675 (30)
Stranger victim (vs. acquaintance)	.22	.15	.06-.24	8.29	465 (4)
With outlier	.26	.38	.35-.41	39.34***	4,846 (5)
Female child victim	-.08	-.14	-.16-.12	51.12***	10,198 (17)
Early onset of sex offending	.14	.12	.05-.19	1.05	919 (4)
With outlier	.11	.03	-.03-.09	32.17***	1,175 (5)
Related child victim	-.12	-.11	-.13-.09	31.79	6,889 (21)
With outlier	-.12	-.30	-.32-.28	696.49***	11,270 (22)
Male child victim	.06	.11	.09-.13	39.53**	10,294 (19)
Diverse sex crimes	.08	.10	.07-.13	1.85	6,011 (5)
With outlier	.08	.11	.08-.14	22.30***	6,109 (6)
Exhibitionism	.11	.09	.06-.12	15.57	4,826 (14)
With outlier	.10	.03	.01-.05	49.59***	9,826 (15)
Any adult male victims	.10	.09	.05-.13	9.07	2,291 (5)
Victims, children of both sexes	.04	.09	.07-.11	52.51***	7,598 (9)
Rapist	.06	.07	.05-.09	122.39***	15,181 (25)
Age of child victim (young)	.08	.05	.01-.10	7.93	1,828 (9)
Current sentence length	.05	.04	.01-.08	14.98*	2,927 (7)
Degree of sexual contact	-.16	-.03	-.10-.04	25.17***	828 (6)
Any child victims	-.05	-.03	-.05-.01	76.75***	13,683 (24)
Force or injury to victims	.00	.01	-.04-.06	7.26	1,564 (8)
With outlier	.02	.25	.22-.28	172.68***	5,982 (9)
Sexual deviancy					
Phallometric assessment (children)	.20	.32	.29-.35	36.79***	4,853 (7)
MMPI 5: Masculinity-Femininity	.17	.27	.14-.40	4.73	239 (3)
Any deviant sexual preference	.20	.22	.16-.30	1.11	570 (5)
Phallometric assessment (boys)	.15	.14	.01-.27	.17	239 (3)
Deviant sexual attitudes	.09	.09	.00-.18	1.49	439 (4)
With outlier	.08	.01	-.07-.09	15.68**	549 (5)
Legally classified as MDSO	.03	.07	.01-.13	20.03***	1,043 (3)
Phallometric assessment (rape)	.00	.05	-.06-.16	2.03	320 (4)
Clinical presentation and treatment history					
Failure to complete treatment	.18	.17	.10-.24	12.87*	806 (6)
Length of treatment	.00	.03	-.02-.08	.75	1,891 (4)
Empathy for victims	.03	.03	.00-.06	3.29	4,670 (3)
Denial of sex offense	.03	.02	-.05-.09	2.29	762 (6)
With outlier	.03	.16	.13-.19	19.21**	5,143 (7)
Low motivation for treatment (self-report/clinical ratings)	-.02	.01	-.08-.10	.24	435 (3)
With outlier	.02	.14	.11-.17	8.19*	4,816 (4)

Table 1 (continued)

Variable	<i>Mdn</i>	<i>r_s</i>	95% CI	<i>Q</i>	<i>n^a</i>
Developmental history					
Negative relationship with mother	.11	.16	.06-.26	.85	378 (3)
Family problems (general)	.07	.08	.01-.15	6.22	812 (5)
Negative relationship with father	.00	.02	-.08-.12	.80	377 (3)
Sexually abused as child	.00	-.01	-.04-.02	8.18	5,051 (5)
Psychological maladjustment					
Severely disordered	.12	.25	.10-.40	6.72*	184 (3)
Any personality disorder	.13	.16	.05-.27	5.73	315 (3)
Anger problems	.10	.13	.00-.26	2.57	231 (3)
Anxiety	.07	.04	-.06-.14	1.05	438 (5)
Any substance abuse problem	.07	.03	-.04-.10	2.39	914 (7)
Depression	-.02	-.01	-.10-.08	6.82	508 (6)
General psychological problem	.00	.00	-.07-.07	.43	867 (8)
Alcohol abuse problem	.00	.00	-.04-.04	4.69	2,013 (7)
Other psychological problems					
Low intelligence	.04	.09	.06-.12	13.99	5,651 (9)
Cognitive impairment/brain damage	-.05	-.05	-.10-.00	3.02	1,502 (3)
Low social skills	.04	-.04	-.14-.06	4.43	379 (3)

Note. CI = confidence interval; *n* = aggregated sample size; MMPI = Minnesota Multiphasic Personality Inventory; MDSO = mentally disordered sexual offender.

^a Values in parentheses represent number of studies.

* $p < .05$. ** $p < .01$. *** $p < .001$.

The sole developmental history variable related to sexual offense recidivism was a negative relationship with mother ($r_s = .16$). This finding, however, was based on a small sample size ($n = 378$) and only three studies. Contrary to popular belief, being sexually abused as a child was not associated with increased risk (95% confidence interval of $-.04-.02$, with no significant variability).

Few psychological maladjustment variables were related to sexual recidivism. The large correlation for our "severely disordered" variable could be almost completely attributed to Hackett's (1971) report that all of his exhibitionists with psychotic symptoms eventually recidivated. Personality disorders were also related to recidivism ($r_s = .16$), but this variable included an unidentifiable portion of offenders with antisocial personality disorder. Neither general psychological problems nor alcohol abuse were related to sexual offense recidivism (average correlations of zero with no significant variability).

Predictors of Nonsexual Violent Recidivism

The predictors of nonsexual violent recidivism were the same risk factors common to general criminal populations (see Table 2). More specifically, nonsexual violent recidivists tended to be young, unmarried, and of minority race. They also engaged in diverse criminal behavior (as adults and as youths) and were likely to have antisocial or psychopathic personality disorders.

Rapists were more likely to recidivate with nonsexual violence than were child molesters. As well, relatively low rates of nonsexual violent recidivism were found for those who selected related victims or male victims. Overall, the number of prior sexual offenses was unrelated to nonsexual violent recidivism. The few available studies also suggested that nonsexual violent recidivism was largely unrelated to sexual deviancy or subjective distress.

Predictors of General (Any) Recidivism

The same factors that predicted nonsexual violent recidivism also predicted general recidivism. General recidivists tended to be young, unmarried, and of a minority race. Not surprisingly, the best predictors of continued criminal involvement were measures of prior criminal involvement (as a youth and as an adult) and antisocial personality or psychopathy.

Sexual criminal history was only weakly related to general (any) recidivism. The general recidivists were those most likely to have used force against their victims and were less likely to have targeted related child victims. There was little relationship between the measures of sexual deviancy and general recidivism.

Overall, the clinical presentation and treatment history variables showed small to moderate correlations with general recidivism. Sex offenders were at increased risk for general recidivism if they terminated treatment prematurely (.20), denied their sexual offense (.12), or showed low motivation for treatment (.11).

As with sexual offense recidivism, a negative relationship with mother was also a risk factor for general recidivism (.14). Again, this finding was based on a limited number of participants ($n = 350$) and studies (three). The other developmental history variables showed minimal correlations with general recidivism.

The only psychological maladjustment variables that were significantly related to general recidivism were personality disorders and alcohol abuse (during the offense or generally).

Comparison Across Domains

To facilitate comparisons across the broad domains of criminal lifestyle, psychological maladjustment, sexual deviance, and

Table 2
Predictors of Nonsexual Violent Recidivism

Variable	<i>Mdn</i>	<i>r_s</i>	95% CI	<i>Q</i>	<i>n^a</i>
Demographic factors					
Age	-.22	-.24	-.27--.21	22.06**	3,376 (7)
With outlier	-.16	-.22	-.25--.19	45.76***	3,530 (8)
Minority race	.16	.23	.19-.27	11.21**	1,981 (3)
Single (never married)	.10	.10	.05-.15	9.22	1,380 (5)
Married (currently)	-.07	-.10	-.15--.05	14.70**	1,380 (5)
General criminality (nonsexual)					
Juvenile delinquency	.20	.22	.15-.29	1.88	906 (4)
Prior violent offenses	.21	.21	.15-.27	1.64	1,203 (5)
With outlier	.22	.26	.21-.31	16.95**	1,585 (6)
Antisocial personality disorder	.18	.19	.10-.28	1.98	494 (4)
MMPI 4: Psychopathic Deviate	.08	.13	.02-.24	2.62	335 (3)
Prior offenses (any/nonsexual)	.12	.11	.08-.14	7.43	3,450 (7)
With outlier	.14	.14	.11-.17	48.26	3,746 (8)
Sexual criminal history					
Rapist	.22	.23	.20-.26	41.09***	4,040 (10)
Any child victims	-.17	-.16	-.20--.12	44.99***	2,742 (9)
Any adult male victims	-.11	-.13	-.20--.06	0.78	898 (3)
Related child victim	-.12	-.12	-.17--.07	4.85	1,611 (6)
Young (vs. older) child	-.08	-.11	-.18--.04	1.85	758 (4)
Male child victim	-.09	-.09	-.15--.03	6.79	1,245 (5)
Current sentence length	-.02	-.02	-.06-.02	4.88	2,407 (5)
With outlier	-.01	.03	-.01-.07	40.72***	2,788 (6)
Prior sex offenses	.00	.02	-.01-.05	8.01	4,300 (9)
Female child victim	-.05	-.02	-.07-.03	24.42***	1,847 (6)
Victims, children of both sexes	.01	-.02	-.09-.05	1.54	869 (3)
Sexual deviancy					
MMPI 5: Masculinity-Femininity	-.09	-.10	-.21-.00	4.81	335 (3)
Phallometric assessment: sexual preference for rape	.17	.03	-.09-.14	17.34***	290 (3)
Clinical presentation and treatment history					
Failure to complete treatment	.04	.08	-.01-.17	1.07	479 (3)
Psychological maladjustment					
Anger problems	-.09	-.09	-.22-.05	1.04	231 (3)
Alcohol abuse problem	.07	.07	-.04-.18	0.18	340 (3)
Depression	-.04	-.04	-.14-.06	7.79	373 (4)
Anxiety	-.03	-.03	-.13-.07	3.29	383 (4)
General psychological problem	.00	.00	-.09-.09	4.43	502 (5)
Other psychological problems					
Low intelligence	.00	.07	.00-.14	8.48*	695 (3)

Note. CI = confidence interval; *n* = aggregated sample size; MMPI = Minnesota Multiphasic Personality Inventory.

^a Values in parentheses represent number of studies.

* $p < .05$. ** $p < .01$. *** $p < .001$.

treatment motivation, Table 4 presents the average findings within each domain. The variables included in each domain were as follows:

1. Criminal lifestyle: nonsexual criminal behavior (as a child or adult) and measures of antisocial personality (including psychiatric diagnoses, psychopathy rating scales, and MMPI Psychopathic Deviate scores).

2. Sexual deviancy: deviant sexual behavior (any prior sexual offenses, diverse sexual crimes, boy victims, stranger victims) and deviant sexual interests (phallometric assessments, self-report, MMPI masculinity-femininity scores).

3. Psychological maladjustment: psychological symptoms/subjective distress (e.g., depression, anxiety, anger, low self-esteem) and substance abuse problems. Personality disorders were excluded from this category because the most frequent

personality disorders were of the antisocial type, which would be more properly classified with general criminality.

4. Negative clinical presentation: denial and low motivation for treatment as assessed by clinical ratings or self-report.

5. Attrition from treatment: Failure to complete treatment was also included in Table 4 for comparison purposes.

To address potential problems with correlated findings, only one finding for each study for each category was selected for the comparisons across domains (Cooper, 1989). As seen in Table 4, sexual recidivism was best predicted by measures of sexual deviancy and, to a lesser extent, by criminal lifestyle. In contrast, nonsexual violent recidivism and general recidivism were best predicted by criminal history. Psychological symptoms were, on average, unrelated to any form of recidivism. Negative clinical presentation was related to general, but not

Table 3
Predictors of General Recidivism

Variable	Mdn	r ₊	95% CI	Q	n
Demographic factors					
Age	-.18	-.16	-.18-.14	74.10***	8,250 (14)
Single (never married)	.14	.11	.08-.14	7.11	5,038 (9)
Minority race	.08	.10	.06-.14	11.57*	2,919 (6)
With outlier	.10	.14	.11-.17	49.35***	3,358 (7)
Married (currently)	-.11	-.08	-.11-.06	28.37***	6,445 (10)
Education	.00	.01	-.06-.08	1.97	914 (3)
General criminality (nonsexual)					
Juvenile delinquency	.20	.28	.22-.34	15.03*	1,113 (5)
With outlier	.20	.20	.15-.25	42.18***	1,574 (6)
Admissions to corrections	.22	.25	.19-.32	2.21	834 (3)
Prior offenses (any/nonsexual)	.25	.23	.21-.25	52.63***	7,565 (15)
Prior violent offenses	.18	.20	.14-.26	6.89	1,184 (5)
Antisocial personality disorder	.23	.16	.13-.19	9.27	3,977 (7)
MMPI 4: Psychopathic Deviate	.09	.10	-.03-.23	.82	239 (3)
Sexual criminal history					
Force or injury to victim	.11	.13	.08-.18	.76	1,304 (3)
Prior sex offenses	.12	.12	.10-.14	48.50***	8,975 (15)
Related child victim	-.16	-.12	-.14-.10	31.65**	6,735 (15)
Any child victims	-.12	-.08	-.11-.05	72.62***	5,798 (14)
Stranger victim (vs. acquaintance)	.08	.07	-.02-.16	2.92	465 (4)
Any adult male victims	.03	.07	.03-.11	14.33**	2,499 (5)
Rapist	.05	.05	.03-.07	84.07***	14,753 (19)
Young (vs. older) child	-.02	-.03	-.09-.03	12.77*	1,056 (7)
Exhibitionist	.05	.04	.01-.07	12.70*	5,467 (7)
Male child victim	.08	.03	.01-.06	7.25	5,943 (11)
Sexual intrusiveness	-.08	-.03	-.12-.06	16.84***	438 (4)
Victims, children of both sexes	.01	.02	-.04-.08	8.88*	1,044 (4)
Female child victim	-.08	-.01	-.04-.02	53.04***	6,052 (11)
Sentence length	.01	.00	-.06-.06	1.13	1,034 (4)
With outlier	.04	.08	.03-.13	24.48***	1,415 (5)
Sexual deviancy					
Phallometric assessment (children)	.19	.11	-.02-.24	5.93	233 (3)
Legally classified as MDSO	.04	-.10	-.16-.04	15.36***	1,053 (3)
Deviant attitudes toward sex	-.03	.06	-.05-.17	1.94	338 (3)
With outlier	-.04	-.01	-.10-.08	8.62*	448 (4)
MMPI 5: Masculinity-Femininity	.02	.04	-.09-.17	.39	239 (3)
Clinical presentation and treatment history					
Failure to complete treatment	.19	.20	.13-.27	5.30	887 (7)
Denial of sex offense	.23	.12	.02-.22	12.76**	408 (3)
Low motivation for treatment	.13	.11	.05-.19	4.66	614 (4)
Previously failed treatment for sexual offense	-.04	-.07	-.12-.02	4.71	1,380 (3)
Developmental history					
Negative relationship with mother	.14	.14	.03-.25	1.13	350 (3)
Sexually abused as child	.00	.10	.01-.19	6.71*	473 (3)
General family problems	.06	.07	.00-.14	4.50	698 (4)
Negative relationship with father	.00	.02	-.09-.13	.94	335 (3)
Psychological maladjustment					
Any personality disorder	.22	.21	.09-.33	4.63***	273 (3)
Alcohol use during offense	.00	.12	.07-.17	16.04***	1,395 (3)
Alcohol abuse problem	.13	.11	.08-.14	3.46	3,552 (5)
Anger problems	.11	.09	-.04-.22	2.44	231 (3)
Anxiety	.08	.08	-.04-.20	1.57	284 (4)
Severely disordered	.03	.03	.00-.06	1.59	3,332 (3)
Any substance abuse problem	-.03	-.01	-.11-.10	5.29	422 (3)
General psychological problem	-.05	-.01	-.11-.09	5.95	364 (5)
Depression	.00	.01	-.10-.12	2.57	354 (5)
Other psychological problems					
Low intelligence	-.01	.00	-.03-.03	6.27	5,004 (4)
With outlier	.00	.01	-.02-.04	15.54**	5,274 (5)

Note. CI = confidence interval; n = aggregated sample size; MMPI = Minnesota Multiphasic Personality Inventory; MDSO = mentally disordered sexual offender.

* Values in parentheses represent number of studies.

* p < .05. ** p < .01. *** p < .001.

Table 4
Correlations with Recidivism for Each Category of Predictor

Predictor	Type of recidivism		
	Sexual	Nonsexual violence	Any
Criminal lifestyle	.12 ± .02	.16 ± .03	.21 ± .02
Sexual deviance	.19 ± .01	.01 ± .03	.12 ± .02
Psychological maladjustment	.01 ± .03	.02 ± .08	.02 ± .03
Negative clinical presentation	.00 ± .07		.15 ± .07
Failure to complete treatment	.17 ± .07	.08 ± .09	.20 ± .07

Note. Values represent average correlations ± 95% confidence interval.

sexual, recidivism. (Insufficient studies examined the relationship between negative clinical presentation and nonsexual violent recidivism.) Finally, failure to complete treatment appeared to be a consistent risk marker for both sexual and general recidivism.

Combined Risk Scales

Combinations of variables should predict recidivism better than any individual risk factors examined alone. To date, risk scales for sexual offenders have not received extensive examination by researchers, but the available results can, nevertheless, provide some guidance.

There are several methods of combining variables. Clinical judges can weigh information gained through interviews, formal testing, and offense history. Alternately, statistical algorithms can select optimal weights to maximize the "prediction" of the known recidivism results (e.g., multiple regression). Such statistical methods will always provide the largest correlations because they are designed to select optimal weights for that sample. A third method is to use objective risk scales, in which weights are assigned in advance based on either theory or previous statistical analyses.

As can be seen in Table 5, the predictive accuracy of clinical risk assessments was unimpressive for sexual (.10), nonsexual

violent (.06), and general recidivism (.14). In contrast, the statistical risk prediction scales (e.g., stepwise regression) typically produced correlations substantially larger than those found for single variables (.46 for sexual recidivism, .46 for nonsexual violent recidivism, and .42 for general recidivism).

The items selected by the statistical procedures, however, varied considerably across studies. Each scale included between three and nine items; no single item was common to all six studies (Abel, Mittelman, Becker, Rathner, & Rouleau, 1988; Barbaree & Marshall, 1988; Hanson et al., 1993b; Prentky, Knight, & Lee, 1997; Quinsey, Rice, & Harris, 1995; Smith & Monastersky, 1986). The most common items were prior sexual offenses (used in four studies), deviant sexual preferences (three studies), marital status (three studies), and diverse sexual crimes and male child victims (both used in two studies). The differences between these studies can be attributed to the variations in samples, to the different variables examined, and to the random fluctuations to which "stepwise" methods are particularly vulnerable (Pedhazur, 1982).

An insufficient number of studies used objective risk scales to justify quantitative analysis of these scales. These studies are discussed briefly, because this research is particularly important for applied risk assessments.

We were able to locate only one study (Epperson, Kaul, & Huot, 1995) in which a risk instrument was specifically designed for sexual recidivism and subsequently cross-validated on an entirely new sample ($r = .27$, with an artificial recidivism base rate of 50%). The 21 items covered sexual and nonsexual criminal history, substance abuse, and employment. Many of the individual items did not withstand cross-replication, however, and the scale is currently being revised.

Objective risk scales designed for general recidivism have predicted nonsexual recidivism among sexual offenders but have not predicted sexual recidivism. Bonta and Hanson (1995a, 1995b) found that the Statistical Information on Recidivism (SIR) scale correlated .41 with general recidivism, .34 with nonsexual violent recidivism but only .09 with sexual recidivism. The SIR scale was developed on a sample of Canadian federal offenders and included items related to criminal history, age, and marital status (Bonta, Harman, Hann, & Cormier, 1996). Similarly, the Community Risk/Needs scale used by the

Table 5
Combined Risk Scales

Variable	Mdn	r_c	95% CI	Q	n^a
Sexual recidivism					
Clinical assessment	.04	.10	.05-.15	16.10	1,453 (10)
Statistical	.44	.46	.40-.52	15.06**	684 (6)
Nonsexual violent recidivism					
Clinical assessment	.06	.06	-.02-.14	1.10	544 (3)
Statistical	.45	.46	.37-.54	.65	343 (3)
General recidivism					
Clinical assessment	.11	.14	.08-.20	17.81**	1,067 (8)
Statistical	.42	.42	.36-.51	.87	453 (5)

Note. CI = confidence interval; n = total aggregated sample size.

^a Values in parentheses represent number of studies.

** $p < .01$.

Correctional Service of Canada (CSC) predicted general parole failure among sexual offenders ($r = .23$, $n = 809$) only slightly less well than among nonsexual criminals ($r = .33$, $n = 253$; Motiuk & Brown, 1993; Motiuk & Porporino, 1989). Sexual offense recidivism was not specifically examined in the CSC Community Risk/Needs studies.

The Violence Risk Appraisal Guide (VRAG) was developed to predict violent recidivism among patients at a maximum security psychiatric hospital and has been replicated on a subsample of sexual offenders (Webster, Harris, Rice, Cormier, & Quinsey, 1994). The 12 items of the VRAG address such factors as personality disorders, early school maladjustment, age, marital status, criminal history, schizophrenia, and victim injury (the last two items were negatively weighted, meaning the presence of these factors reduced risk scores). In a replication sample of 159 sexual offenders, Rice and Harris (1997) found that the VRAG correlated .47 with violent recidivism (sexual and nonsexual) but only .20 with sexual recidivism.

Influence of Recidivism Methods

Additional analyses were conducted to identify possible effects of differences in recidivism methods (e.g., convictions vs. other outcome criteria). To reduce unnecessary error variance, these supplemental analyses were conducted on two predictor variables for which there were many studies and the overall effects were uncontroversial: namely, (a) prior sexual offenses predicting sexual offense recidivism and (b) any prior offenses predicting general (any) recidivism.

The findings (correlations) based on convictions were equivalent to those findings based on other recidivism measures for prior sexual offenses, $\chi^2(1, N = 11,139, k = 28) = .36, p > .50$, and for prior (any) offenses, $\chi^2(1, N = 7,565, k = 15) = 1.93, p > .10$. As well, the thoroughness of the recidivism search had no influence on the magnitude of the findings; prior sex offenses, $\chi^2(1, N = 15,675, k = 29) = 1.19, p > .25$; prior (any) offenses, $\chi^2(1, N = 6,192, k = 14) = .04, p > .50$.

Discussion

What factors are related to sexual, nonsexual violent, and general (any) recidivism among sexual offenders? Three major categories of predictor variables were examined: criminal lifestyle, sexual deviance, and psychological maladjustment. The offenders' clinical presentation and treatment compliance were also considered as potential risk factors. Overall, the predictors of nonsexual recidivism (violent or nonviolent) were very similar to those found in the research on general (mostly nonsexual) offender populations (e.g., Gendreau et al., 1996). Sexual offenders who recidivated with nonsexual crimes tended to be young and unmarried and to have a history of antisocial behavior as juveniles and as adults. In contrast, the strongest predictors of sexual recidivism were factors related to sexual deviance. Criminal lifestyle variables did predict sexual recidivism, but the best predictors were factors such as deviant sexual interests, prior sexual offenses, and deviant victim choices (boys, strangers). With the exception of personality disorders, psychological maladjustment had little or no relationship with any type of recidivism. A negative clinical presentation (e.g., low remorse,

denial, low victim empathy) was unrelated to sexual recidivism but showed a small relationship with general recidivism. Failure to complete treatment, however, was a significant predictor of both sexual and nonsexual recidivism.

The correctional literature tends to minimize differences between types of offenders (e.g., M. R. Gottfredson & Hirschi, 1990), but the current results suggest that sexual offenders may differ from other criminals (see also Hanson et al., 1995). For nonsexual offending, sexual and nonsexual criminals seem much the same, but separate processes appear to contribute to sexual offending. In particular, not all criminals would be expected to have deviant sexual interests (e.g., sexual interest in boys). Consequently, risk assessments should consider separately the probability of sexual and nonsexual recidivism. Given that the predictors of nonsexual criminality were almost identical to those found for general offenders (Champion, 1994; Gendreau et al., 1996; D. M. Gottfredson & Tonry, 1987), standard criminal risk assessment methods (e.g., Bonta, 1996; Gendreau et al., 1996) should predict equally general recidivism among sexual offenders. The assessment of sexual recidivism risk, in contrast, needs to consider factors specially related to sexual offending (e.g., sexual deviance, victim type).

Although the risk factors in each domain can be relatively independent, they may also interact. We found that general criminality was significantly related to sexual recidivism, but the direct relationship was weak (.10–.14). Two individual studies, however, found that the combination of deviant sexual preferences and psychopathy substantially increased the risk for sexual reoffending (Gretton, McBride, & Hare, 1995; Rice & Harris, 1997).

The present findings contradict the popular view that sexual offenders inevitably reoffend. Only a minority of the total sample (13.4% of 23,393) were known to have committed a new sexual offense within the average 4- to 5-year follow-up period examined in this study. This recidivism rate should be considered an underestimate because many offenses remain undetected (Bonta & Hanson, 1994). Nevertheless, even in studies with thorough records searches and long follow-up periods (15–20 years), the recidivism rates almost never exceeded 40%. Low rates of recidivism can, nevertheless, be worrisome, given the serious effects of sexual victimization (Hanson, 1990; Koss, 1993b).

In this review, measures of subjective distress had no relationship to any type of recidivism; the average correlations were near zero with no significant variability. Subjective distress is a transient state, and no measure of highly changeable states would be expected to predict sexual offense recidivism years later.

Previous research, however, has suggested that negative emotional states may trigger a sexual offense cycle. When recidivists have been asked about the factors that contributed to their new offense, they frequently identify subjective distress (Pithers et al., 1989; Pithers, Kashima, Cumming, Beal, & Buell, 1988). Similarly, McKibben, Proulx, and Lusignan (1994; Proulx, McKibben, & Lusignan, 1996) found that when sexual offenders were upset, they were likely to report deviant sexual fantasies (based on repeated assessments). These significant within-subject correlations contrast with the nonsignificant between-subject correlations between mood and recidivism found for the same population (Proulx et al., 1995). The extent to which

sexual offenders are distressed does not predict recidivism, but sexual offenders appear to react deviantly when distressed. Specifically, sexual offenders often report taking solace in sexual thoughts and behavior when confronted with stressful life events (Cortoni, Heil, & Marshall, 1996).

One of our most important findings is that offenders who failed to complete treatment were at increased risk for both sexual and general recidivism. Reduced risk could be due to treatment effectiveness; alternately, high-risk offenders may be those most likely to quit, or be terminated, from treatment. In general, psychotherapy dropouts tend to be young and uneducated and to have antisocial personality characteristics (Wierzbicki & Pekarik, 1993). Attrition from treatment can also be interpreted as a behavioral (vs. purely verbal) indicator of motivation to change.

Somewhat surprisingly, a negative clinical presentation (i.e., verbal expressions of denial or low motivation for treatment) was related to general recidivism but not sexual recidivism. One explanation is that such negative clinical presentation may be shaped heavily by a hostile, belligerent style, a style more connected to a general criminal lifestyle than sexual deviance.

Treatment effectiveness was not examined directly in this review because several narrative reviews (W. L. Marshall, Jones, Ward, Johnston, & Barbaree, 1991; W. L. Marshall & Pithers, 1994; Quinsey et al., 1993) and at least two meta-analyses (Alexander, 1995; Hall, 1995b) have been conducted. Overall, opinion remains divided as to the effectiveness of treatment, partially because of the difficulty of conducting research in this field (Hanson, 1997). The results of the current review, however, suggest that treatment programs can contribute to community safety through their ability to monitor risk. Even if we cannot be sure that treatment will be effective, there is reliable evidence that those offenders who attend and cooperate with treatment programs are less likely to reoffend than those who reject intervention.

The detailed results presented in Table 1 should be of considerable interest to clinicians conducting applied assessments of sexual offense recidivism risk. Several cautions, however, need to be considered. First, among the large number of variables examined, some are likely to appear statistically significant because of chance only. These random findings are most likely when only a limited number of studies examined a particular variable (i.e., three to five). In contrast, the findings based on large number of studies (e.g., 10 or more) are unlikely to change even with the addition of a few new studies.

The predictive accuracy of most of the variables was also small (.10–.20 range), and no variable was sufficiently related to justify its use in isolation. It was also unclear how best to combine the variables because their intercorrelations were unknown and would be expected to be rather high for certain variables (e.g., young and unmarried). Consequently, we do not recommend simply summing the items, using either unit weights or weights inferred from the tables, to create risk scales. The development of a validated, actuarial risk scale for sexual offense recidivism remains an important research goal. Nevertheless, our results could be used to identify the factors worth considering in risk assessments. Although the average clinical risk assessment showed little accuracy, the most accurate clinical risk assessments required clinicians to consider a standard list

of risk factors before making their judgments (e.g., Smith & Monastersky, 1986, $r = .29$).

Another limitation was that almost all the predictors of sexual offense recidivism were historical or extremely stable variables. Consequently, such variables cannot be used to assess treatment outcome or monitor risk to the community. Historical factors cannot improve, and it is difficult to change deviant sexual preferences (Rice et al., 1991) or antisocial or psychopathic personality disorder (Hare et al., 1990). The most changeable (dynamic) risk factor was treatment attendance. To identify dynamic risk factors, further research is required using alternate research designs (such as time series).

The low rate of sexual offense recidivism presents a special challenge to those interested in identifying risk factors. Often many years (5–10) of follow-up are required to accumulate sufficient cases for statistical analyses. Consequently, researchers either have to rely on preexisting data sets (with potentially outdated measures) or set up new data sets that yield results many years later. Today's clinicians can contribute to future research by carefully assessing and recording the factors that are considered important for risk assessment but have yet to be adequately researched. Included in this list is the use of sex as a coping mechanism (Cortoni & Marshall, 1995), associations with other sexual offenders (Hanson & Scott, 1996), attitudes tolerant of sexual crimes (Bumby, 1996), heterosocial perception deficits (Hanson & Scott, 1995; Malamuth & Brown, 1994), and unfulfilled intimacy needs (Frisbie, 1969; Seidman, Marshall, Hudson, & Robertson, 1994). As well, there is a need to examine the developmental precursors of sexual offending, as has been well documented for general criminality (Andrews & Bonta, 1994; Loeber & Dishion, 1983; Loeber & Stouthamer-Loeber, 1987). It is only through the collective effort of past and future researchers that we can improve our ability to distinguish between those sexual offenders likely to reoffend and those who have stopped for good.

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