

**ADULT SEX OFFENDER RECIDIVISM:
A Review of Studies**

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ADULT SEX OFFENDER RECIDIVISM: A REVIEW OF STUDIES

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EXECUTIVE SUMMARY

Sex offenders may reoffend, even after they have been convicted and imprisoned. This conduct is known as recidivism. Research on sex offender recidivism can help the public and policymakers understand the risks posed by convicted sex offenders. This paper summarizes the major research findings related to sex offender recidivism.

Only a few studies on sex offenders have been conducted with scientific precision. Thus, the conclusions that can be drawn from this literature are somewhat limited; they include the following:

Recidivism:

- Recidivism rates vary among different types of sex offenders. For example, rapists tend to have higher recidivism rates than child molesters, while incest offenders tend to have the lowest recidivism rates.
- Sex offenders with a criminal history have higher recidivism rates than sex offenders convicted for the first time.
- Some sex offenders, such as child molesters, may reoffend many years after an initial sex offense. For these sex offenders, deviant sexual behavior may be a life-long problem.

Treatment:

- While some studies have shown that particular treatment programs are associated with lower recidivism rates in certain types of sex offenders, there is a lack of solid scientific evidence (from controlled experimental studies) that clearly proves treatment programs reduce sex offender recidivism.
- Additional research is needed to identify more effective methods of treating and supervising sex offenders, as well as more accurate methods of predicting sex offender recidivism.

INTRODUCTION

In the United States, sex crimes have been recognized as serious and widespread. A national survey of adults age 18 or older has revealed that 27 percent of the women and 16 percent of the men had been sexually victimized before age 18 (Finkelhor et al. 1990).

Most convicted sex offenders eventually return to the community, and some of these sex offenders will reoffend. This reoffense behavior is known as recidivism. Research on sex offender recidivism can help the public and policymakers understand the risks posed by sex offenders.

This paper addresses the following questions:

- 1) *How is recidivism measured?*
- 2) *How often do sex offenders reoffend?*
- 3) *When do most reoffenses occur?*
- 4) *Does treatment reduce recidivism?*

I. HOW IS RECIDIVISM MEASURED?

A study of recidivism must begin by asking four primary questions:

- 1) What definition of recidivism will be used?
- 2) What source of information will be used?
- 3) What follow-up period will be used?
- 4) How will sex offenders be classified? (Will the recidivism rates be calculated for the group as a whole, or separated according to victim type, degree of violence, or some other means?)

Definition of Recidivism

Recidivism can be defined as a rearrest, a reconviction, or a return to prison. The decision on which definition to use depends upon the particular research question, the available data sources, the resources, and the length of the follow-up period.

Some studies report only sex reoffenses, whereas others identify any reoffenses.

Information Sources

Sources can include official records of actions taken by police, prosecution, sentencing courts, and corrections departments. The use of multiple records increases accuracy. In a few cases, researchers have obtained certificates of confidentiality and supplemented official data with offenders' self-reports.

Length of Follow-Up

In order to understand recidivism rates, it is essential to know the *length of follow-up time* used in a study. For studies that compare differences between groups, such as an evaluation of a treatment program, a longer follow-up time increases statistical power, thus increasing the possibility that the study will detect significant differences if they exist (Singer and Willett 1991).

Two primary factors discourage long follow-up periods. First, the costs are increased. Second, policymakers are often anxious to learn the results, and prefer not to wait several years for findings.

(Technical information on calculating recidivism rates is provided in Appendix II.)

Classification of Sex Offenders

When studying recidivism, it is necessary to decide whether, and how, to group sex offenders. Some studies report the reoffense patterns of the entire group of sex offenders, whereas others classify offenders by their crime type.

The most common classification is to separate offenders by their victim age preference, thus the two principle categories are *rapists* and *pedophiles* (Prentky, Knight, and Quinsey 1990). According to this classification, offenders who commit the offense of “rape of a child” are classified as pedophiles. In most studies, and in this paper, the term “*child molester*” is used for “*pedophile*.”

Incest offenders are often distinguished from other child molesters. This category includes offenders who are biological parents and stepparents, as well as siblings.

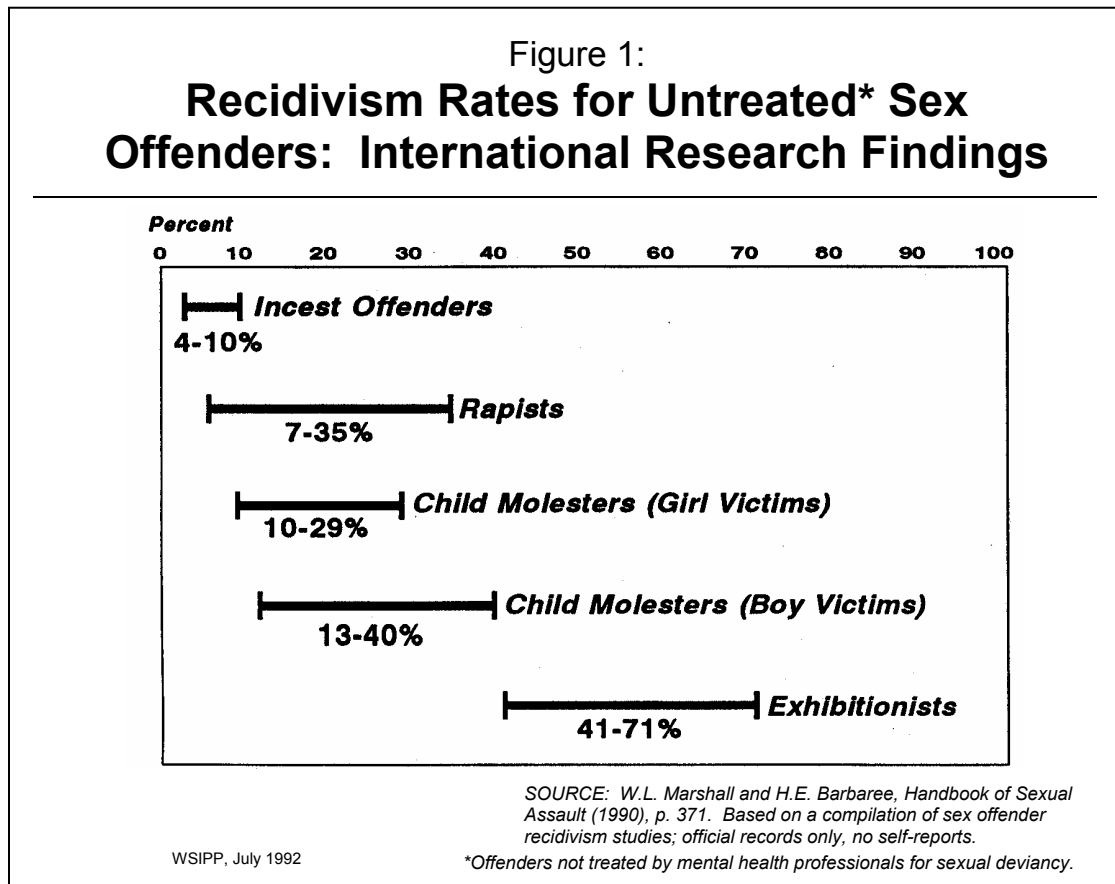
Another type of sex offender is the “*hands off*” *sex offender*. This includes exhibitionists, voyeurs, and obscene phone callers.

II. HOW OFTEN DO SEX OFFENDERS REOFFEND?

The following section reviews the most frequently cited studies of sex offender recidivism. (Information on sample characteristics, follow-up time, and recidivism rates is summarized in Table 1 of Appendix I.)

A useful summary of the research is provided by Marshall and Barbaree (1990) in their literature review (See Figure 1). The researchers concluded that:

- Exhibitionists have the highest sex offense recidivism rates (41 to 71 percent).
- The next highest recidivism rates are found among child molesters who offend against boys (13 to 40 percent).
- The recidivism rates of rapists (7 to 35 percent) are similar to the rates of child molesters who offend against girls (10 to 29 percent).
- Incest offenders generally have the lowest recidivism rates (4 to 10 percent).



Literature Review:

Soothill, Jack, and Gibbens (1976) conducted a follow-up study of 86 rapists convicted in England in 1951. They found that within 22 years, 49 percent were reconvicted of a new offense of any type; 15 percent were reconvicted of a sex offense; and 6 percent were reconvicted of rape. The authors emphasized that one-fourth of the offenders who had a reconviction of any type were convicted after 10 or more years of follow-up.

Gibbens, Soothill, and Way (1978) found that the recidivism rates for *incest* offenders were lower than for other types of offenders. In a study of 155 male incest offenders convicted in England in 1961, with a follow-up time of 12 years, the reconviction rate for father/daughter incest offenders was 12 percent for any offense and 4 percent for sex offenses. For brother/sister incest offenders, the reconviction rate was 49 percent for any offense and 7 percent for sex offenses.

Grunfeld and Noreik (1986) conducted a follow-up study of 541 males in Norway who received their *first sanction* for a felony sex offense between 1970 and 1974. Recidivism was defined as receiving a new legal sanction of any type. With an average of 12 years of follow-up, the recidivism rate for any offense was 13 percent. Rapists had a reoffense rate of 22 percent for any offense and 10 percent for rape. For offenders who committed sexual “abuse of minors,” the recidivism rate was 10 percent for any offense and 7 percent for the same type of sex offense. For the recidivists, the average duration from release to reoffense was 43 months.

Beck and Shipley (1989) estimated the rates of rearrest, reconviction, and reincarceration (for any felonies and serious misdemeanors) of more than 16,000 offenders released from prisons in 11 states in the United States in 1983. Within three years of release, the recidivism rates (for any reoffense) for *rapists* were: rearrest = 52 percent, reconviction = 36 percent, and reincarceration = 32 percent. Rapists were 10.5 times more likely than non-rapists to be rearrested for rape. The recidivism rates for other (non-rape) sexual assault offenders were: rearrest = 48 percent, reconviction = 33 percent, and reincarceration = 24 percent.

Broadhurst and Maller (1991) used survival analysis¹ to estimate the probability of sex reoffense. Their sample consisted of 560 male sex offenders (including rapists, child molesters, incest offenders, and exhibitionists) released for the first time from Western Australian prisons between 1975 and 1987. Recidivism was defined as reincarceration for any new offense and the follow-up time was up to 12 years. The recidivism rate was 44 percent for offenders with no prior offenses, and 72 percent for offenders with one or more prior offenses. The study also found that young or single offenders were more likely to reoffend than older or married offenders.

¹ Survival analysis is a statistical technique that is most suitable for censored data. Censored data refer to data that include some subjects who did not reoffend within the study follow-up time.

III. WHEN DO MOST REOFFENSES OCCUR?

Only a few studies have examined the *timing* of reoffenses. These studies have shown that reoffenses often occur many years after the initial conviction. This pattern is in contrast to general criminal patterns, where the propensity to commit crimes decreases with increased age. Three important studies are summarized here:

Gibbens, Soothill and Way (1981), in a study of child molesters in England, found that 23 percent of the offenders were reconvicted for a sexual or violent offense during the 22-year follow-up. Of those who reoffended, 48 percent were reconvicted during the first 5 years and the remaining 52 percent were reconvicted during the next 17 years. The severity of the new offenses did not lessen over time.

Broadhurst et al. (1988) followed sex offenders in Western Australia for up to 9 years. Most of the reoffenses (measured by reincarceration for any offense) occurred within 2 years of release and reached a plateau after 5 years. However, some reoffenses occurred even after 8 or 9 years.

Quinsey et al. (1993) conducted a 10-year follow-up study of child molesters and rapists in Canada. Results showed that sex offense reconvictions did not decline over time. The risk of reoffending was as great in the seventh year as it was in the first.

In conclusion, it appears that sex offenders may reoffend many years after an initial conviction. For some, deviant sexual behavior may be a life-long pattern.

IV. DOES TREATMENT REDUCE RECIDIVISM?

The primary purpose of sex offender treatment is to reduce sex offense recidivism. Current treatment programs target deviant sexual preference, cognitive distortions about offending, and a broad range of skill deficits such as social incompetence, lack of empathy, and impaired anger management (Quinsey and Earls 1990; Marques et al. 1993). Community supervision is included in some treatment programs. In addition, treatment methods of sex drive reduction which have been explored include psychosurgery, surgical castration, and pharmacologic intervention (Marshall et al. 1991).

Psychosurgery, Castration, and Pharmacologic Intervention

In addition to ethical concerns and biological side effects, *psychosurgery* (brain surgery procedures which destroy that part of the brain associated with sexual drive) has failed to show the intended treatment effect (Marshall et al. 1991).

Surgical castration has been shown to be effective in reducing sex offense recidivism. A review of four major studies on castration in Europe (Heim and Hursch 1979), compared the recidivism rates after castration with the recidivism rates of non-castrated comparison groups and found that the sex recidivism rates among castrated sex offenders were significantly lower, ranging from 1.1 to 4.1 percent after five or more years of follow-up. The recidivism rates for non-sexual crimes among castrated subjects also declined.

Castration is unlikely to receive public acceptance in the United States mainly due to ethical considerations. It should be noted that although sexual drive had extinguished or significantly declined in 82 to 97 percent of the castrated offenders, some were still able to engage in sexual intercourse 20 years or more after the operation (Heim and Hursch 1979).

Antiandrogens and *hormonal agents* reduce sexual drive pharmacologically and, consequently, affect sexual behavior. These treatments have been shown to be effective in reducing sex offense recidivism in some sex offenders, especially when combined with psychological treatment. However, non-compliance and dropout are the major problems of pharmacological treatments. In addition, the risk of reoffense may return in some high-risk offenders once the drug treatment is discontinued, with escalation of offense behavior reported. Future research is needed on how to select the most suitable patients and control the unwanted side effects (Bradford 1990).

Psychological Treatment

Psychological treatment of sex offenders includes the traditional psychotherapies, insight therapy, and cognitive behavioral therapy. Cognitive behavioral treatment is targeted at reducing deviant arousal, improving social skills, increasing appropriate sexual desires, and modifying distorted thinking (Marshall, Law and Barbaree 1990). Because many professionals in the field consider deviant sexual behavior to be a life-long problem, it has been argued that the current goal of psychological treatment is to manage or control, rather than to cure (Freeman-Longo and Knopp 1992).

Evaluating the Effectiveness of Treatment Programs

Experimental design is the ideal method for treatment evaluation. In an experimental study, the subjects are randomly assigned to a treatment group or a control group. Offenders in the treatment group receive the treatment under evaluation, and offenders in the control group either receive no treatment or a different treatment. Subsequently, the recidivism rates of the two groups can be compared. Random assignment allows researchers to automatically control for other factors that may influence recidivism (such as age, criminal history, and type of offense.)

When random assignment is not possible, a quasi-experimental design may be used which compares a group of treated offenders to a group of non-treated offenders who are similar to the treated offenders in demographic and offending characteristics. In quasi-experimental studies, it is common to match the treatment and the comparison group according to certain variables such as age and sex. Some studies have used a single group to evaluate the effectiveness of a treatment program, by either comparing the pre- and post-treatment scores on psychiatric assessments or by merely identifying the recidivism rate. Although an improved score or a low recidivism rate is encouraging, only a comparison group can determine the actual effectiveness of a treatment program in reducing recidivism (Marques et al. 1993).

Results from the evaluations of sex offender treatment are largely inconclusive due to variabilities and limitations in methodology. Nevertheless, some studies have claimed lower recidivism rates for treated sex offenders than non-treated offenders, particularly for child molesters and exhibitionists (Marshall et al. 1991). In this section, several treatment evaluations are reviewed. (*Table 2 of Appendix I summarizes the findings.*)

Sturgeon and Taylor (1980) followed 260 mentally-disordered sex offenders who were treated at a California maximum security hospital (Atascadero State Hospital). The comparison group consisted of non-treated sex offenders released from California prisons. At one to five years after release, the sex reoffense rate (measured by reconviction) for the treatment group was 15 percent; this was significantly lower than the non-treatment group's rate of 25 percent. Treatment results varied for different types of offenders. For child molesters who offended against girls, the difference in recidivism rates for the two groups was not statistically significant (20 percent for treated; 18 percent for non-treated). For child molesters who offended against boys, the sex reoffense rate for the treated (15 percent) was significantly lower than the non-treated (38 percent). For rapists, the treated offenders also had a significantly lower recidivism rate (19 percent) than the non-treated (28 percent).

Davidson (1979) evaluated an Ontario penitentiary treatment program. He compared treated sex offenders with a matched comparison group of sex offenders who were released from the same institution before the treatment program started. Follow-up was at least five years. The sex reoffense rate (measured by reconviction) was 11 percent for the treatment group and 35 percent for the comparison group. In a subsequent evaluation of the treatment program, Davidson (1984) found that treatment was more effectiveness for child molesters than for rapists.

Marshall and Barbaree (1988) studied 126 child molesters who had completed a pre-treatment assessment between 1975 and 1985 in Ontario, Canada. All of the offenders had admitted to their problem and expressed a desire for treatment. Of the 126 offenders, 68 completed the comprehensive cognitive-behavioral treatment. The remaining 58 offenders did not participate in the treatment either because they changed their minds about treatment after release or they lived too far away from a treatment provider. The follow-up time was 1 to 11 years, and recidivism was measured using “unofficial estimates by social agencies and patients’ self reports,” in addition to official records of rearrest and reconviction. Results showed that the recidivism rate for sex offenses was 13 percent for the treatment group and 35 percent for the non-treatment group. The recidivism rate was lower for incest offenders (8 percent for the treated and 22 percent for the non-treated) than for non-familial child molesters (18 percent for the treated and 43 percent for the non-treated).

Rice, Quinsey, and Harris (1991) also evaluated the effectiveness of a treatment program for child molesters in Ontario, Canada. The treatment program was designed to alter the molester’s sexual preference for children. The sample included 136 child molesters released from a maximum security psychiatric institution in Canada before 1984. The average follow-up time was 6.3 years. Of the 136 offenders, 50 had participated in treatment. For the entire sample, the reconviction rate was 31 percent for sex offenses, 43 percent for violent offenses, and 56 percent for any offense. For offenders matched on criminal history and sexual preferences, the sex offense reconviction rate was 38 percent for the treatment group and 31 percent for the non-treatment group. The difference between the two recidivism rates was not statistically significant. The researchers questioned the comparability of the two groups, but they concluded that treatment did not affect recidivism.

Hanson, Steffy, and Gauthier (1992) examined the long-term recidivism rates of 197 child molesters sentenced to a correctional institution in Southern Ontario, Canada. Of the 197 offenders, 106 received treatment between 1965 and 1973 (the treatment group); 31 were incarcerated in the same institution before the treatment program (Control Group I); and 60 served in the same institution at the same time as the treatment group, but did not receive treatment (Control Group II). The follow-up time was 10 to 31 years, with 93 percent of the offenders followed for more than 15 years.

Based on survival analysis, the recidivism rates (measured by reconviction for a sexual and/or violent offense) of the treatment group and the control groups were not significantly different. The sex reoffense rate was 44 percent for the treatment group, 48 percent for Control Group I, and 33 percent for Control Group II. In regards to the time of reoffense, the authors concluded that “the greatest risk period (of reoffense) appears to be the first five to ten years, but child molesters appear to be at significant risk for reoffending throughout their life.” In this study, 23 percent of the sample were reconvicted more than 10 years after release.

State of Vermont (1992) researchers evaluated the recidivism rates of 473 convicted sex offenders who participated in an outpatient treatment program between 1982 and 1991. The follow-up time was up to eight years, including the treatment period. Offenders were considered to be recidivists if they were: 1) reconvicted of a new sex offense, 2) arrested or arraigned for a new sex offense, or 3) believed by the primary therapist or parole/probation officer to have

engaged in another sex offense. Of the 473 offenders, 6 percent committed a new sex offense. The recidivism rate was 19 percent for rapists, 7 percent for child molesters, 3 percent for incest offenders, and 3 percent for “hands off” offenders.

Marques, Day, and Nelson (1992) are currently conducting a longitudinal evaluation of a cognitive-behavioral treatment program for sex offenders at the Atascadero State Hospital in California. Rapists and child molesters who volunteered to participate in treatment were randomly assigned to a treatment group or a volunteer control group. A non-volunteer control group was also selected, consisting of eligible offenders who chose not to participate in treatment. Subjects in the study will be followed until the year 2000. Preliminary results indicated that at an average of 25 months after release, rearrest rates for sex offenses in the three groups ranged from 6 to 8 percent. The differences among the groups, however, were not statistically significant. The researchers stated that it was too early to make policy recommendations at this stage of the evaluation.

Perhaps the best summary on the current status of treatment for sex offenders is the conclusions made by Marshall et al. (1991). After an extensive review of the literature, they concluded that:

“Comprehensive cognitive/behavioral programs and those programs which utilize antiandrogens in conjunction with psychological treatments, seem to offer the greatest hope for effectiveness and future development. However, even here not all versions of these programs are equally effective and those that are do far better with child molesters and exhibitionists than they do with rapists. At the moment there is insufficient data to identify in advance those patients who will profit least (except of course for rapists), and this topic urgently needs research.”

V. CONCLUSIONS

Because of wide variations in offender characteristics, research methodology, measurement definitions, and follow-up time, a comprehensive understanding of sex offender recidivism cannot be gained from research literature. However, a few conclusions can be made by judging the overall patterns of the results:

Recidivism:

- Recidivism rates vary among different types of sex offenders. For example, rapists tend to have higher recidivism rates than child molesters, while incest offenders tend to have the lowest recidivism rates.
- Sex offenders with a criminal history have higher recidivism rates than sex offenders convicted for the first time.
- Some sex offenders, such as child molesters, may reoffend many years after an initial sex offense. For these sex offenders, deviant sexual behavior may be a life-long pattern.

Treatment:

- While some studies have shown that particular treatment programs are associated with lower recidivism rates in certain types of sex offenders, there is a lack of solid scientific evidence (from controlled experimental studies) that clearly proves treatment programs reduce sex offender recidivism.
- Additional research is needed to identify more effective methods of treating and supervising sex offenders, as well as more accurate methods of predicting sex offender recidivism.

Appendix I

**Table 1:
STUDIES ON SEX OFFENDER RECIDIVISM
Non-Treatment Samples**

			Any Rearrest	Any Reconviction	Any Reincarceration	Sex Rearrest	Sex Reconviction	Same Type of Sex Reconviction
NATIONAL STUDY	OFFENDER TYPE	FOLLOW-UP (years)	RECIDIVISM RATES					
Soothill et al. (1976)	Charged with Rape	22		48.8%			15.1%	5.8%
Gibbens et al. (1978)	Charged with Incest Father/Daughter Brother/Sister	12		12.0% 49.0%			4.0% 7.0%	
Grunfeld & Noreik (1986)	Sanctioned offenders	9 - 14		12.8%				
Beck & Shipley (1989)	Released prisoners Rapists Sexual Assault	3	51.5% 47.9%	36.4% 32.6%	32.3% 24.4%			
Broadhurst & Maller (1991)	Sex offenders released from prisons	12			51.0%			
WASHINGTON STATE STUDY	OFFENDER TYPE	FOLLOW-UP (years)	RECIDIVISM RATES					
Department of Corrections (1984)	Paroled/discharged from prison	5			27.8%			
Legislative Budget Committee (1985)	Treated sex offenders	5		27.6%			22.8%	
Berliner et al. (1991)	SSOSA SSOSA-eligible	5	5.6% 23.7%			1.5% 2.5%		

**Table 2:
TREATMENT OUTCOME STUDIES FOR SEX OFFENDERS**

STUDY & TREATMENT	OFFENDER TYPE	FOLLOW-UP (years)	RECIDIVISM RATES	
			Treatment	Non-Treatment
Davidson (1979), <i>Inpatient Cognitive/Behavioral</i>	Sex offenders released from an Ontario prison	5 +	11.0%	35.0%
Sturgeon and Taylor (1980), <i>Inpatient</i>	All offenders	1 - 5	15.4%	25.0%
	Girl molesters		19.8%	17.9%
	Boy molesters		14.6%	37.5%
	Rapists		19.3%	27.9%
Marshall and Barabee (1988), <i>Cognitive/Behavioral</i>	Child molesters	1 - 11	13.2%	34.5%
	Incest offenders		8.0%	21.7%
Rice et al. (1991), <i>Behavioral treatment</i>	Child molesters admitted to a maximum security psychiatric institution	6.3 (average)	37.9%	31.0%
Hanson et al. (1992)	Child molesters	10 - 31	44.0%	48.0% 33.0%
State of Vermont (1992), <i>Outpatient</i>	All sex offenders	8	6.3%	
	Rapists		19.0%	
	Child molesters		7.0%	
	Incest offenders		3.0%	
	Exhibitionists, etc.		3.0%	
Marques et al. (1992), <i>Inpatient Cognitive/Behavioral</i>	Rapists and child molesters	2	5.7% - 8.0%	

Appendix II

CALCULATION OF RECIDIVISM RATES

Types of Recidivism Rates

For a group of sex offenders, the recidivism rate measures the frequency of reoffense during a specified time period. Rate is defined as the number of events in a specified period divided by the population at risk for that event during the same time period. Very often, rate is presented as a percentage.

Three types of recidivism rates have been applied in studies of sex offender recidivism:

1) Cumulative recidivism rate: The most commonly used reoffense rate is the cumulative percentage of offenders who reoffended during a specific follow-up period. For example, for a sample of 100 sex offenders released from prison, if 10 had a sex offense rearrest during the first year, and another 5 had a sex offense rearrest during the second year, the cumulative rearrest rates at one year and two years of follow-up would be 10 and 15 percent respectively. This cumulative recidivism rate is most appropriate when the follow-up period is the same for every subject in the sample (Furby et al. 1989).

2) Recidivism rate with a person-year denominator: Studies of sex offender recidivism frequently must rely on samples of individuals with different follow-up times due to differences in their time of release and time of withdrawal from the study (reincarceration, relocation, death, etc.). To adjust for the varied follow-up time, the recidivism rate can be standardized by using a person-year denominator:

$$\text{Recidivism Rate} = \frac{\text{Total recidivists during follow-up time}}{\text{Total person-years at risk}} \times 100\%$$

For example, for a sample of five sex offenders, if the at-risk periods of follow-up were 1, 1, 2, 3, and 3 years, the *total person-years at risk* would be 10. If two of the five offenders had a sex offense rearrest during the follow-up time, then the sex rearrest rate per year would be 20 percent. A major limitation of this recidivism measure is that it does not reflect the time of reoffense.

3) Survival analysis: the life table method: Another statistical technique for estimating recidivism rates is survival analysis, which allows researchers to simultaneously examine whether offenders reoffended and when they reoffended (Singer and Willett 1991). The life table method in survival analysis relies on a calculation of the failure rates in specified time intervals. The failure rate is the number of failures (reoffenders) in a time interval, divided by the total number of offenders at risk in that interval. Offenders who reoffended or withdrew in the earlier interval are not at risk and are, therefore, removed from the denominator. For example, if we followed 100 offenders for two years and 20 offenders reoffended during the first year, the failure rate for the first year would be 20 percent (20/100). If 20 of the remaining 80 offenders reoffended during the second year, the failure rate for the second year would be 25 percent (20/80). Using the life table method, the cumulative recidivism rate can be calculated for any given time period.

Comparability of Recidivism Rates

When comparing individual studies, population differences should be considered before making inferences from the recidivism rates (Maltz 1984). For example, when comparing recidivism rates from different states and countries, it is important to consider the variations in statutes and policies in sentencing, treatment, probation, and community supervision. Also, the definitions of sex crimes may vary widely between different jurisdictions. Even within the same jurisdiction, definitions of sex crimes can change over time. Furthermore, sample selection may also affect recidivism rates. Samples drawn from released prisoners usually include more serious criminals than samples drawn from official records of arrest or conviction, and thus may have higher recidivism rates. Finally, variations in research methodology (sample size, follow-up time, recidivism measures, etc.) will also influence the estimated recidivism rates. For these reasons, few studies can be directly compared.

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