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Outcome of an Institutional Sexual Offender Treatment Program: A Comparison Between Treated and Matched Untreated Offenders

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Data from a sexual offender treatment program operated by the Correctional Service of Canada at the Regional Psychiatric Center (Saskatoon) supported the conclusion that cognitive behavioral treatment can reduce sexual offense recidivism. The study compared 296 treated and 283 untreated offenders followed for a mean of 6 years after their release. An untreated comparison subject was located for each treated offender on three dimensions: (a) age at index offense, (b) date of index offense, and (c) prior criminal history. Data were analyzed using tests of proportion, survival analysis, and analysis of offender Criminal Career Profiles.

Over a mean follow-up period of almost 6 years, convictions for new sexual offenses among treated offenders were 14.5% versus 33.2% for untreated offenders. During the follow-up period, 48% of treated offenders remained out of prison compared to 28.3% of untreated offenders. Time series comparisons of treated and comparison samples also showed that treated men reoffended at significantly lower rates after 10 years.

A Criminal Career Profile (CCP) was constructed by taking the Age at First Conviction and plotting the offender's successive lengths of time free against time incarcerated. Pre- and posttreatment slopes of the CCP were lower for both groups posttreatment; however, the degree of change was significantly greater for the treated group, indicating a greater reduction in criminal activity among these offenders. Taken together, the results of all three analytic techniques supported the efficacy of appropriate correctional treatment for effective reduction of recidivism.

KEY WORDS: sex offender treatment outcome; recidivism; criminal career profile; efficacy of treatment.

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INTRODUCTION

Since 1989, with the publication of the Furby, Weinrott & Blackshaw meta-analysis, opinion in the field of sexual offender treatment has been contaminated by the theme that treatment has not been shown to reduce recidivism. Furby *et al.* reported sexual recidivism rates for treated samples that were highly similar to those of untreated offenders, calling into question the value of treatment. Their conclusion was tempered to some degree by Hall's (1995) finding that treatment did result in a small improvement relative to comparison conditions. However, a reanalysis of the 12 studies included in Hall's meta-analysis conducted by Rice and Harris (1997) concluded that treatment effects were confined to those studies that employed men who had rejected or dropped out of treatment as comparison subjects. The five remaining studies, which used random assignment or a quasi-experimental design, did not show significant treatment effects. Studies such as these and the "nothing works" viewpoint have been used to justify abandoning efforts at rehabilitating men who commit sexual crimes. Instead, in some cases, indefinite periods of incarceration, and/or harsher judicial approaches have been used to manage such offenders (Gendreau & Goggin, 1996).

There are several possible interpretations for the similarity in outcomes for treated and untreated sexual offenders. The type of treatment offered in the past might not have been an appropriate intervention. For example, therapies designed to correct low self-esteem have not proven to be particularly useful in reducing criminal behavior compared to appropriate correctional treatment (Andrews & Bonta, 1995). Another possible explanation is that the treated and untreated groups used in these comparisons were not initially equivalent on some key criminological characteristic(s), for example number of past sexual convictions. For a variety of reasons it has been difficult to identify comparison samples with comparable levels of risk. Ordinarily, samples of convenience have been selected for comparison with treated offenders, and there has been little opportunity to control for initial level of criminal risk (Barbaree, 1997). This procedure has caused some researchers to generate comparison samples that have lower criminal risk than treated samples, and not unexpectedly, sexual recidivism rates for these treated offenders have been similar to those of untreated offenders. Men selected for treatment, for obvious reasons, are likely to have been at fairly high risk to reoffend, whereas comparison subjects may be of lower or unknown risk depending upon how they are selected. Finally, the problem of low base rates of reoffense among the sexual offender population as a whole has made it difficult to establish the efficacy of treatment (Barbaree, 1997; Marshall & Barbaree, 1988). This is particularly true for lower risk offenders in whom a floor effect is encountered (Nicholaichuk, 1996). Of course, another possible explanation for the similarity in outcomes is that treatment is ineffective in reducing recidivism.

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The lack of appropriate comparison groups is only one of many problems plaguing the search for effective recidivism reduction strategies. Statistical analytic strategies have, to date, largely ignored the qualitative element in recidivism research. For example, in calculating recidivism statistics, all new sexual crimes following treatment are given the same weight and are counted as failures. However, the actual crime could range from indecent exposure to assaults that result in great victim harm. Fortunately, an analytic strategy has become available that captures more information about a criminal career and helps shed some light on the qualitative elements of criminal behavior, the Criminal Career Profile (CCP), a concept developed by Wong, Templeman, Gu, Andre, and Leis (1998) with the support of the Correctional Service of Canada (CSC).

The following study represents an attempt to overcome between-group differences in initial level of criminal risk in assessing treatment outcomes. The study presents outcome data from a sexual offender treatment program operated by the Correctional Service of Canada (CSC) at the Regional Psychiatric Center (RPC) in Saskatoon, Canada. The study also presents a new method of measuring and analyzing outcomes, the CCP, which carries some advantages over strategies previously employed in that it provides a measure of the degree of violence in the criminal pattern.

METHOD

Subjects

Clearwater is a 48-bed treatment unit located within the RPC. It has been in operation since 1981, and its theoretical orientation has been that of cognitive/behavioral treatment and relapse prevention. The program accepts high risk sexual offenders (recidivists and those with extensive criminal histories) who are admitted from other CSC institutions throughout the Canadian Prairie Region for 6 to 8 months of treatment. Details of the program are reported elsewhere (Nicholaichuk, Gordon, Andre, & Gu, 1996).

The treated group consisted of high risk male sexual offenders who volunteered to attend and completed the Clearwater Sexual Offender Treatment Program between 1981 and 1996, and who had since been released. This group ($n = 296$) included 168 rapists (57%), 49 pedophiles (17%), 47 mixed offenders (men who offended against both adults and children) (15%), and 32 child molesters who were predominantly incest offenders (11%). Offender categories were determined from the official record and the offender's self report.

A stratified matched comparison group was drawn from an archive of approximately 2600 sexual offenders who had been incarcerated in the Prairie Region of the Correctional Service of Canada from 1983 to 1996. As a result of the matching

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Table I. Percentage of Offender Type in Treated and Comparison Samples

Offender category	% Treated ($N = 296$)	% Comparison ($N = 80$)
Rapists	56.7	62.4
Pedophiles	16.6	26.3
Mixed	15.9*	5.0*
Incest	10.8	6.3

*$p < .018$.

process, a comparison group of 283 offenders was established. We then identified the type of offender in the comparison sample, that is, whether they were rapists, pedophiles, mixed, or child molesters. However, offender types were established for only 80 men in the comparison sample because of the lack of completeness in the original data base. Table I gives the percentages of the types of offenders in the treated and comparison samples. Between the two samples, only the proportion of mixed offenders was significantly different, $z = 2.36$, $p < .018$.

Some of the untreated controls may have participated in various treatment programs at other facilities while incarcerated, but none had been seen at the high-intensity Clearwater program. Posttreatment outcomes (new convictions for sexual and nonsexual crimes) of the two groups were then compared employing tests of proportion (Cohen, 1988) and survival analysis (Allison, 1984).

Procedure

From the comparison archive, a match was created for each treated offender on three dimensions: (a) age at index offense, (b) date of index offense, and (c) prior criminal history—the number of sexual and non-sexual convictions prior to the index offense.

To illustrate the matching process, for a treated offender who committed a sexual offense in 1981 and was 19 years old at the time, we found a man in the comparison archive who had also committed a sexual offense (the index offense) in the same year, who was 19 years old at the time, and who had a similar number of other criminal convictions (plus or minus two) prior to the commission of that offense.

Subjects were followed from the first release date after the index offense until June 1996, the data collection date. Subsequent analyses were based on official criminal records. Outcomes were coded according to whether there was a new sexual or nonsexual offense, or a violent, or nonviolent offense. In addition, the rates of parole or probation violations and the rates of no readmission to prison were noted.

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Three analytic strategies were employed:

Tests of Proportion

Outcomes in terms of tests of proportion (Cohen, 1988) focused upon two categories of convictions depending upon the severity of the sentence:

1. First event, federal admission: This refers to the first posttreatment, postrelease event that brought the offender back to a federal prison. In Canada, a more serious offense will result in a sentence of 2 years or more to be served in a federal prison. This category excludes misdemeanor offenses, which usually result in fines or periods of incarceration of less than 2 years to be served in provincial institutions.
2. All events, all readmissions: This measure refers to all offenses following treatment regardless of the penalties incurred. This is the most comprehensive measure of long-term outcome.

Survival Analysis

A survival analysis was completed comparing survival rates between treated and comparison offenders (Allison, 1984). The observation period was 10 years. This was thought to be sufficient to provide a credible indication of outcome over a sufficiently extended period.

Criminal Career Profile

Wong *et al.* (1998) presented data that show that two measures derived from an offender's CCP, Age of First Conviction (AFC) and slope, provide an overall measure of the degree of violence of an offender's past criminal convictions. The CCP is a graphic representation of ratio of the time incarcerated to the time not incarcerated. All the information required to plot the CCP can be obtained from official criminal records. When plotted, the CCP looks like a series of steps; the steeper the angle at which these steps ascend, the longer an offender was incarcerated. If one assumes that offenders who have committed more serious or violent crimes are given longer sentences, then the more serious or violent an offender's criminal career, the steeper the slope of the CCP. A least square regression line can be fitted to the slope of the CCP to obtain a measure of angle in degrees. There is evidence that CCP slope is a valid measure of criminal violence. Wong *et al.* (1998; also see Hemphill, Templeman, Wong & Hare, 1998) reported that the slope of the CCP and the AFC both correlated highly with the number of past violent convictions (.50 and −.33 respectively) and with Psychopathy Checklist-Revised

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Table II. Demographic Statistics

	Comparison Mean (sd) ($N = 283$)	Treated Mean (sd) ($N = 296$)	t
Age at data collection	37.7 (7.96)	39.5 (9.16)	2.53*
Age of first conviction	21.7 (7.20)	21.0 (6.82)	1.21
Age of index offense	28.4 (8.16)	29.3 (9.02)	1.21
Race			
Nonnative	$N = 158$	$N = 214$	
Native	$N = 125$	$N = 82$	
Number of nonviolent convictions before treatment	4.9 (6.41)	5.8 (6.74)	1.622
Number of violent convictions before treatment	2.9 (1.92)	3.8 (2.47)	4.89***
Total number of convictions	7.7 (7.35)	9.5 (7.86)	−2.82**
Percent repeat sexual offenders	37.8	39.2	$Z = -0.26$
Follow up period (years)	7.3 (3.98)	5.9 (3.59)	24.51***

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

scores (.40 and −.33 respectively), the latter being one of the best measures of criminal violence (Hare, 1991). As well, a group of offenders who committed serious violent acts while incarcerated and was subsequently incarcerated in a supermaximum security prison has significantly steeper slope (32 degrees) than the average group of offenders (24.8 degrees). It was expected that, with treatment, the steepness of the slope of the CCP in the treated group would decrease significantly compared to controls.

For each subject, the age of first conviction and the slope of pretreatment and posttreatment CCP was calculated. If there was no reoffense posttreatment, the angle of the CCP would be 0 degrees. Slopes for the CCP for groups were computed as the mean of all individual slopes in the group.

RESULTS

Demographic data for the two groups after matching are presented in Table II. An exact pairwise match was achieved in 30% of the cases ($N = 84$). For the remainder of the sample, the matching criteria had to be relaxed to include offenders with more or fewer offenses than those in the treated sample. As a result, the treated group had, on average, a significantly larger number of convictions than the comparison sample.

Tests of Proportion

The outcomes according to tests of proportion employing the First Federal Admission and All Events criteria are presented in Table III. The table illustrates

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Table III. Percentage of Offenders Readmitted to Prison for New Convictions or Technical Violations by Treatment Group

Criteria	Group: Treated (N)	Group: Comparison (N)	z
	First Federal Admission		
Sexual conviction	6.1 (18)	20.5 (58)	−5.134*
Nonsexual conviction	7.8 (23)	7.1 (20)	0.3226
Technical violation	19.6 (58)	17.0 (48)	0.8191
No readmission	66.6 (197)	55.5 (157)	2.733*
	All Events		
Sexual conviction	14.5 (43)	33.2 (94)	−5.289**
Nonsexual conviction	32.1 (95)	35.0 (99)	−0.7359
Technical violation	5.4 (16)	3.5 (10)	1.0872
No readmission	48.0 (142)	28.3 (80)	4.875*

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

how the choice of outcome measure affects the results. The first admission measure shows the lowest rates and is the measure that is most consistent with other federally-based Canadian studies. The all events measure shows the highest rates but captures all new crimes posttreatment.

Figure 1(a–c) presents the outcomes according to whether the offender was a sexual recidivist or not, in terms of the All Events criterion, and also shows the rates for new sexual, violent nonsexual, and all nonsexual offenses. Figure 1(a–c) also gives the rates for new violations and readmissions and reconvictions for all reasons.

Figure 1(a–c) shows that as a group, 14.5% of the treated and 33.2% of the untreated offenders committed new sexual offenses, $z = -5.289$, $p < .001$. However, only 8.8% of treated first-time offenders committed new sexual crimes whereas 27.3% of untreated first time offenders reoffended sexually $z = -5.289$, $p < .001$. Offenders with more than one prior conviction for sexual crimes reoffended at much higher rates. For example, 23.5% of treated recidivistic offenders committed new sexual crimes whereas 43.0% of untreated offenders did so, $z = -3.092$, $p < .001$. Men without previous convictions for sexual crimes committed new sexual crimes at much lower rates (8.8%) as opposed to repeat offenders (23.5%). Figure 1(a–c) also shows that treated offenders were less likely to return to prison. Finally, no between-group differences were observed in new nonsexual convictions.

Figure 2 gives the outcomes in terms of the first readmission to federal penitentiary criterion. Recidivism rates are considerably lower employing this measure and the crimes tended to be of a more violent nature.

Figure 3 gives the percentages of reconvictions for sexual crimes committed by the different types of offenders and according to whether they were first-time or repeat offenders. Figure 3 also gives the percentages of reconvictions for the

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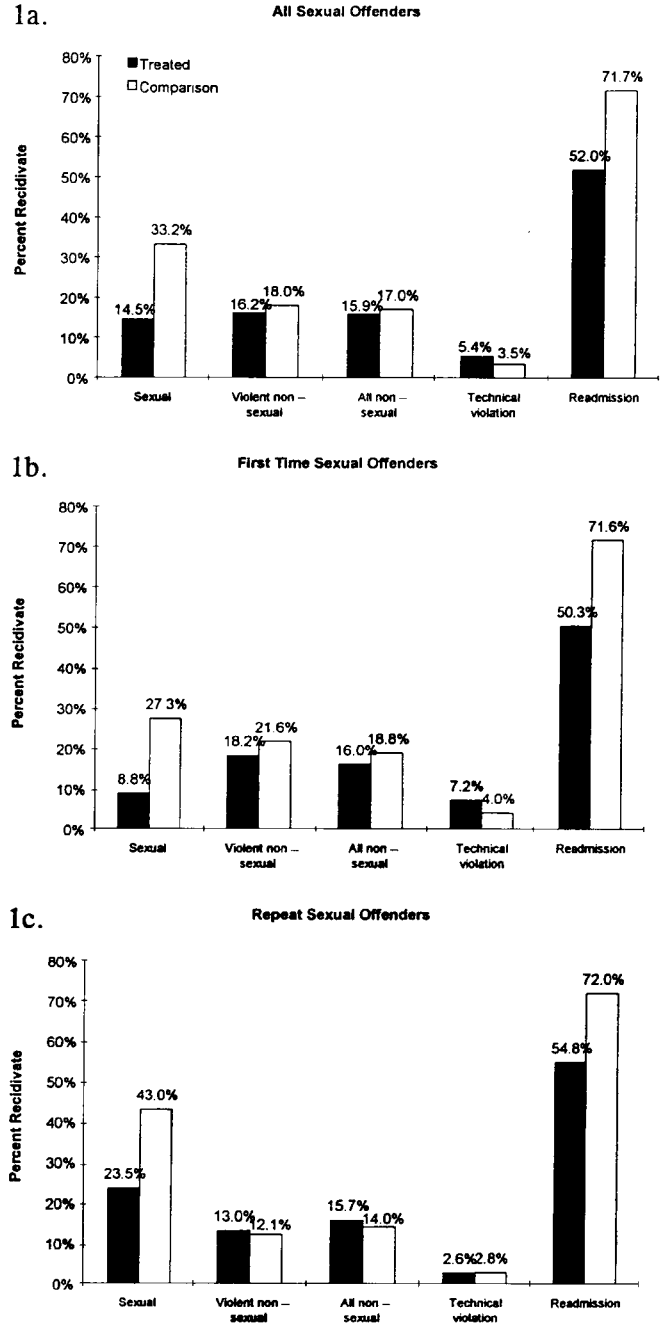

Fig. 1. Percent sexual and violent nonsexual reoffenses by all, first time and repeat offenders.

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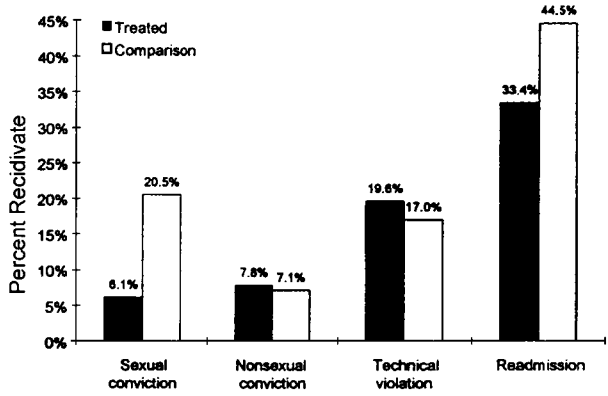

Fig. 2. First readmission to federal penitentiary.

untreated rapists and pedophiles identified through file review where there were sufficient numbers to permit analysis. Percent reconvictions for mixed and incest offenders are not given for the untreated mixed and incest offenders because of problems of small sample size in these cells ($N = 4$ and $N = 5$, respectively). In this comparison, 14.3% of treated and 42% of untreated rapists reoffended sexually, $z = -4.250$, $p < .001$ and 18.4% of treated and 61.9% of untreated pedophiles reoffended sexually, $z = -3.600$, $p < .001$. First-time rapists and pedophiles reoffended at much lower rates than their untreated counterparts $z = 2.633$, $p < .008$ and $z = 3.698$, $p < .001$, respectively. Repeat rapists were much less likely to reoffend than untreated repeat rapists, $z = 2.950$, $p < .003$, whereas differences between treated and untreated repeat pedophiles only approached significance, $z = 1.505$, $p = .066$, possibly because of the small numbers of men in each group (22 and 10, respectively).

Survival Analysis

Figure 4 gives survival curves for the treated and comparison samples followed for a period of 10 years. The criterion measure was restricted to new sexual crimes. Over the period, the survival rate between groups was significantly different (Wilcoxin (1) = 10.63, $p < .001$). Figure 4 shows that offenders in the comparison group began reoffending earlier after their release from prison and continued to reoffend at higher rates throughout the entire period.

Criminal Career Profile

Figure 5 shows the pre- and posttreatment CCP slopes for treated and comparison groups. The criminal histories of the comparison subjects were not as violent

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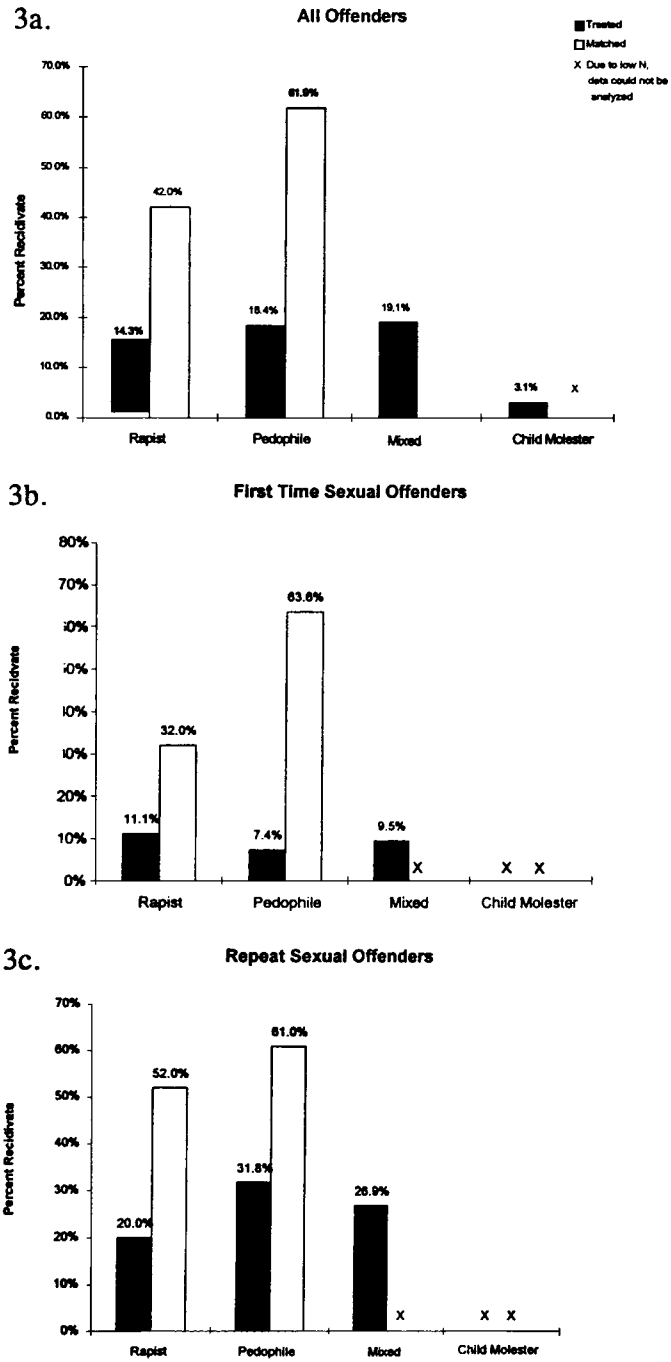

Fig. 3. Percentage sexual reconviction by group and sexual offender type.

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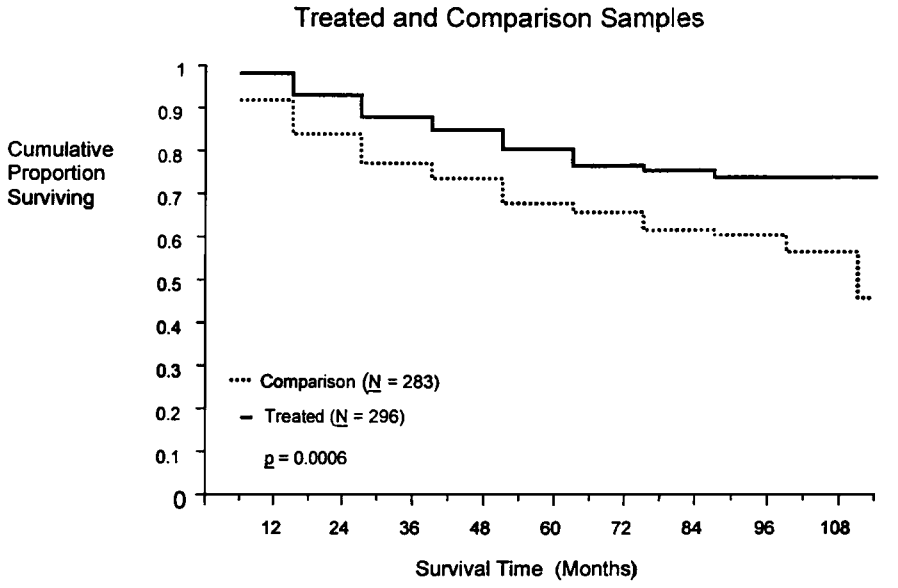

Fig. 4. Ten year survival function.

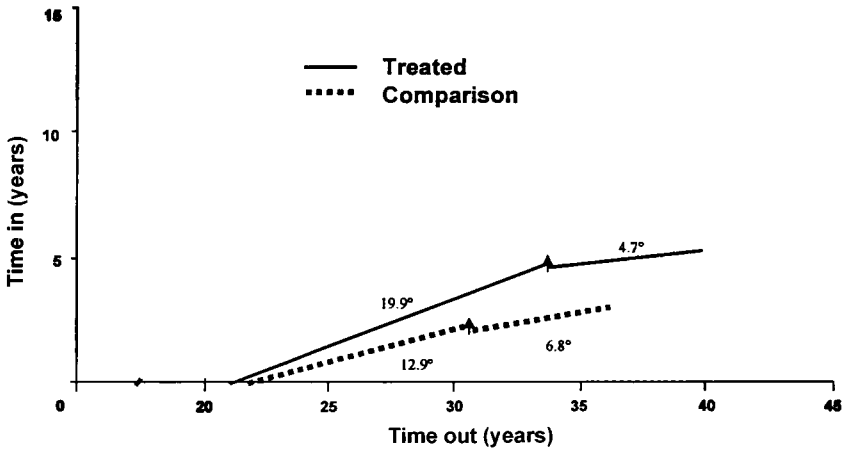

Fig. 5. Pre- and posttreatment slopes by group.

as the treated group in spite of a similar number of preindex offense criminal convictions. This was shown by the lower CCP slope for this group. The mean pretreatment angle for the treated group was 19.9° while the posttreatment angle was 4.7°, $t(295) = 12.02$, $p < .01$. For the comparison group, pretreatment angle was 12.9° and posttreatment angle was 6.8°, $t(282) = 5.81$, $p < .01$. It appeared

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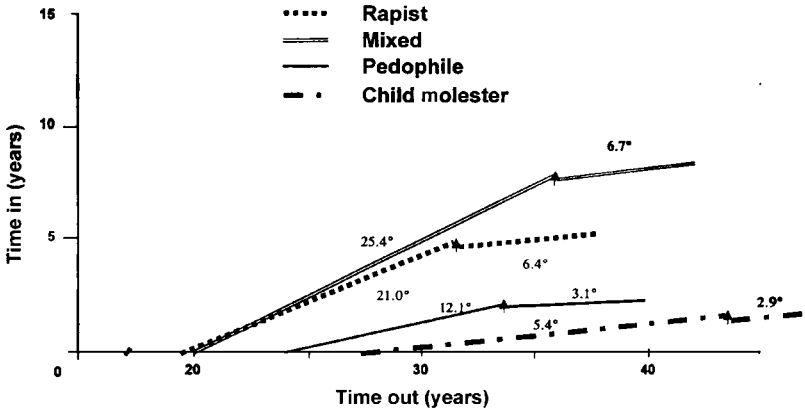

Fig. 6. Pre- and posttreatment slopes by sexual offender type.

that subjects in the comparison sample received shorter sentences for their crimes, and thus, their group CCP had a less steep slope. Assuming that sentence length reflects the degree of violence of the crime, the lower slope suggests the offenders in the comparison sample committed less violent crimes and, therefore, received shorter sentences than offenders in the treated group.

The change in the posttreatment slope of the CCP following the index offense for both groups reflected a reduction in new crime for both groups. However, the reduction in the degree of violence was much greater for the treated sample.

Figure 6 presents the CCPs by offender category. The steepest slope represents the mixed group who sexually assaulted children and adults in addition to their other criminal activities: 24% of their crimes were sexual. The group with the next steepest slope was the rapists, with 17% of crimes of a sexual nature. Pedophiles committed fewer crimes but showed the highest frequency of sexual crimes (40%). Finally, child molesters committed the fewest crimes and came to prison the latest in their lives. Although 24% of their offenses were sexual, this group was not thought to represent a very criminalized or violent population. Figure 6 also shows that higher risk and more violent offenders came into prison at an earlier age (e.g., the mixed group and rapists began their criminal careers at approximately 20).

Paired t-tests were employed to assess the differences in CCP slope pre- and posttreatment. Comparisons were significant for the rapist, mixed and pedophile groups, $t(167) = 9.88$, $p < .01$; $t(46) = 5.59$, $p < .01$; and $t(48) = 4.32$, $p < .01$, respectively. For the incest offenders, the comparison was not significant, $t(31) = 1.82$, $p = .08$. The lack of a treatment effect among incest offenders was not surprising as these men represented a lower risk group.

A repeated measures ANOVA was conducted taking pre- and posttreatment slopes of the CCP as dependent measures. The analysis showed a main effect pre- and posttreatment $F(1,570) = 166.47$, $p < .0001$. There was also a significant

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effect of the interaction $F(1,570) = 30.86$, $p < .0001$. Although there was a reduction in new crime following the index offense in both groups, the interaction indicated that the effect was significantly more pronounced in the treated group. The reduction in new violence was highly significant.

An additional ANOVA was performed employing data from 83 subjects for whom there were exact pairwise matchs. Taking pre- and posttreatment CCP slopes for the treated and untreated groups as dependent measures, there was a main effect pre- and posttreatment, $F(1,162) = 46.39$, $p < .0001$. There was also a significant effect of the interaction, $F(1,162) = 16.07$, $p < .0001$. Again, there was a reduction in new violence posttreatment in both groups, although the reduction was significantly more pronounced in the treated group.

DISCUSSION

This study presents the outcomes of a Canadian sexual offender treatment program. The present data provide evidence that treating high-risk sexual offenders can significantly reduce sexual recidivism. The effect of treatment upon recidivism was evident in first time and repeat sexual offenders, although the latter group clearly represented a greater risk for new offenses. Even so, their risk to reoffend appears to have been reduced by treatment. The reduction in recidivism shown here was not only statistically significant but was thought to be clinically significant as well, that is, greater than 50%. While the recidivism rates for treated offenders were consistent with rates reported by other treatment programs (Hall, 1995), the high rates of recidivism in the matched comparison group was surprising. It appears that the highly significant differences in outcomes between treated and untreated offenders were at least in part the result of the use of a carefully matched, stratified comparison group to control for preexisting criminal risk.

Although the results reported above appear promising, some methodological difficulties were present. Approximately 70% of the offenders in the comparison sample could not be identified according to type of offense. This prevented an exact match on this variable and may have resulted in inappropriate matches, such as comparing a pedophile to a rapist. Nor was it possible to determine whether the men in the comparison group were treatment refusers or dropouts, both high-risk groups. However, there were equal numbers of repeat sexual offenders in both groups, an important dimension. It could also be argued that the treatment effect found here was, in part, the result of the fact that men in the comparison sample were at risk for a longer period than treated offenders.

On the other hand, the matching process employed here may have resulted in a bias against treated offenders because their criminal histories, as judged by their CCPs and number of convictions, were more severe than those in the comparison group. Comparison subjects had fewer offenses pretreatment and also tended to receive shorter sentences for their crimes. Thus, they may have been a less

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violent group. Finally, bias could have been introduced by an unknown number of comparison subjects having received treatment programs elsewhere.

The argument that treatment can reduce sexual recidivism is made even more compelling by the fact that all three analytic techniques employed here yielded highly similar results. The tests of proportion, survival analysis, and analysis of the changes in slope of the CCP all point to not only a reduction of new sexual crimes, but to a lessening in the degree of violence posttreatment. These data also provide support for the risk/need principle (Andrews & Bonta, 1994). We found a treatment effect in a high risk population, for example, the mixed offenders, and no significant effect in a lower risk group, incest offenders, a finding consistent with Nicholaichuk (1996).

Of concern was the finding that reduction in new crime appeared to be accounted for mostly by the fewer number of sexual offenses committed. Treatment did not appear to affect the rate at which the treated offenders committed new nonsexual crimes. This reemphasizes the need for sexual offender treatment programs to address nonsexual violence and general criminal recidivism, as an appropriate goal of correctional programs is to reduce all crime, not just sexual crime.

The CCP allowed us to overcome the limitations of analytic techniques such as tests of proportion and survival analysis because it includes more information about the degree of violence in an offender's criminal history. The AFC and CCP give important information about the qualitative aspects of offense patterns, which are reflected in sentence length in addition to the usual quantitative components. More serious offenses usually result in higher slopes pre- and posttreatment; this element may be lost in survival analyses or in tests of proportion that are based upon the commission of a crime without regard to its severity or degree of violence. By employing the CCP as an outcome measure, we were able to investigate the degree to which both the quantity and quality of criminal behavior could be modified by treatment. CCP slope changes posttreatment indicated reduction in the number of new crimes and a reduction in their violence.

In summary, these data indicate that cognitive/behavior sexual offender treatment, when delivered to a high risk/need population, can be effective in reducing sexual recidivism. It is also apparent that in order to detect a treatment effect, treated offenders must be compared to untreated offenders who are equivalent in terms of risk. Therefore, a necessary step in evaluating treatment outcomes is to ensure that proper comparison samples are identified rather than relying upon samples of convenience as has been done in the past. The present findings, if replicated, demonstrate the efficacy of treatment as a useful risk management tool.

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