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ADOLESCENT SEXUAL OFFENDER RECIDIVISM: SUCCESS OF SPECIALIZED TREATMENT AND IMPLICATIONS FOR RISK PREDICTION

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ABSTRACT

Objective: To evaluate the success of specialized community-based treatment for reducing adolescent sexual reoffending and explore the predictive utility of variables assessed regarding sexual and nonsexual recidivism.
Method: Recidivism data (criminal charges) were collected for 58 offenders participating in at least 12 months of specialized treatment at the SAFE-T Program. Data were also collected for a comparison group of 90 adolescents who received only an assessment ($n = 46$), refused treatment ($n = 17$), or dropped out before 12 months ($n = 27$). Follow-up interval ranged from 2 to 10 years ($M = 6.23$, $SD = 2.02$). Offenders completed a battery of psychological tests to provide standardized data regarding social, sexual, and family functioning.
Results: Recidivism rates for sexual, violent nonsexual, and nonviolent offenses for treated adolescents were 5.17%, 18.9%, and 20.7%, respectively. The Comparison group had significantly higher rates of sexual (17.8%), violent nonsexual (32.2%), and nonviolent (50%) recidivism. Sexual recidivism was predicted by sexual interest in children. Nonsexual recidivism was related to factors commonly predictive of general delinquency such as history of previous offenses, low self-esteem, and antisocial personality.
Conclusions: Results support the efficacy of treatment for adolescent sexual offenders and are consistent with the notion that sexual recidivism is predicted by unique factors unrelated to general (nonsexual) reoffending. © 2000 Elsevier Science Ltd.

Key Words—Adolescent sexual offender, Offender treatment, Recidivism, Risk prediction.

INTRODUCTION

MANY ADULT SEXUAL offenders begin offending as adolescents and are not detected for many years—if at all (Abel, Mittelman, & Becker, 1985; Briggs & Hawkins, 1996; Elliott, Browne, & Kilcoyne, 1995; Groth, Longo, & McFadin, 1982; Knight & Prentky, 1993). Of course, some adolescent sexual offenders are apprehended, and approximately 20% of all people charged with a sexual offense in North America are juveniles (Federal Bureau of Investigation, 1993; Statistics Canada, 1997). In response to the obvious need to reduce the risk of adolescent sexual reoffending, the number of treatment programs has increased significantly in North America during the past 20

Table 1. Published Recidivism Rates from Follow-up Studies of Specialized Adolescent Sexual Offender Treatment

Study	Treatment N	Comparison N	Follow-up Period	Recidivism Measure	Sexual Recidivism (%)	Nonsexual Recidivism (%)
Smith & Monastersky, 1986	112	0	$M = 28$ months	Criminal charges	14	35
Kahn & Lafond, 1988	350	0	Several weeks to 5 years (no M specified)	Unspecified	9	8
Becker, 1990	52	0	1 Year	Self-report or re-referral	10	Unspecified
Kahn & Chambers, 1991	221	0	$M = 20$ months	Convictions	8	45
Mazur & Michael, 1992	10	0	6 Months	Self- and Parent-report	0	Unspecified
Bremer, 1992	193	0	Several months to 6 years (no M specified)	Self-report	11	Unspecified
Brannon & Troyer, 1995	36	0	4 Years	Adult incarceration	3	14
Hagan & Cho, 1996	100	0	2–5 Years (no M specified)	Convictions	9	46
Borduin, Henggeler, Blaske, & Stein, 1990	8	8	$M = 3$ years	Criminal charges	12.5—Treatment 75—Comparison	25—Treatment 50—Comparison
Lab, Shields, & Schondel, 1993	46	109	1–3 Years (no M specified)	Convictions	2—Treatment 4—Comparison	22—Treatment 13—Comparison

years. In the US, for example, although there was only one specialized treatment program for adolescent sexual offenders in 1975 (Knopp, 1985), there were over 600 by 1995 (Freeman-Longo, Bird, Stevenson, & Fiske, 1995).

There is notable consensus regarding the issues to be addressed in the specialized treatment of adolescent sexual offenders (Association for the Treatment of Sexual Abusers, 1997; National Adolescent Perpetrator Network, 1993). Treatment goals include increasing offender accountability; assisting offenders to understand and interrupt the thoughts, feelings, and behaviors that maintain sexual offending; reducing deviant sexual arousal, if present; improving family relationships; enhancing victim empathy; improving social skills; developing healthy attitudes towards sex and relationships; and reducing the offenders' personal trauma, if present. Despite the agreement regarding treatment goals, and the recent proliferation of treatment programs, however, little is known about the success of specialized treatment.

Since the development of the first comprehensive treatment program for adolescent sexual offenders in 1975, there have been only 10 published reports of criminal recidivism following specialized treatment (see Table 1). Although sexual recidivism rates for treated offenders are below 15% across studies, there are a number of factors that make it difficult to conclude that treatment is effective. First, 8 of the 10 investigations did not include a comparison group; therefore, it is impossible to ascertain the relative impact of treatment on recidivism. Second, no investigation used a mean follow-up period beyond 4 years, and many studies had a mean follow-up period of less than 3 years. Given that sexual offenders may present a risk of reoffending for many years after treatment (Furby, Weinrott, & Blackshaw, 1989; Hanson, Steffy, & Gauthier, 1993), such brief follow-up periods will necessarily result in low recidivism rates. Third, most investigators have used criminal convictions or offender self-report as the measure of recidivism. Recidivism data based on official reports are inevitably conservative estimates of sexual reoffending given that many victims never report their abuse (e.g., Statistics Canada, 1993); however, the

use of criminal convictions or offender self-report is likely to produce significantly lower estimates of reoffending than the use of criminal charges (Hanson, 1997). Indeed, the sexual assault recidivism rate for treated offenders from studies in Table 1 using criminal charges is 14% (17 out of 120) whereas the recidivism rate from studies using convictions or self-report is significantly lower at 8% (52 out of 635), χ^2 (1, $N = 755$) = 4.33, $p < .05$ (data from Kahn & Lafond, 1988, were excluded as the recidivism measure was unspecified in their study). Finally, although it is likely that some adolescent offenders moved to another state following treatment (all published investigations have been conducted in the United States), investigators have used only local and/or state records rather than a national registry.

In contrast to the relative dearth of follow-up studies with adolescents, there have been many published investigations of the success of specialized treatment for adult sexual offenders. Although some reviewers have noted that there is no empirical evidence to support the efficacy of specialized sexual offender treatment (e.g., Furby et al., 1989; Quinsey, Harris, Rice, & Lalumière, 1993), others have suggested that there is at least minimal empirical support (e.g., Hall, 1995; Marshall & Pithers, 1994). Miner (1997) observed that methodological shortcomings make it difficult to draw conclusions regarding treatment outcome. In particular, he noted that many investigators studying the efficacy of adult sexual offender treatment have employed a single-group, follow-up design. When untreated offenders have been included, Miner noted that it is common for researchers to use nonequivalent comparison groups such as treatment dropouts or refusers. Hanson (1997) argued that if random assignment to treatment is not possible, it is important for researchers who choose to examine such "convenience" comparison groups to assess and control for pre-treatment differences between the groups on factors known to be related to recidivism. In a recent meta-analysis, Hanson and Bussière (1998) found that risk of sexual recidivism among primarily adult male sexual offenders was associated with factors related to sexual offending such as victim age (children), victim gender (male), victim relationship to offender (extrafamilial), prior sexual and nonsexual offending, and sexual preference for children. Conversely, the authors found that nonsexual reoffenses were associated with factors commonly ascribed to nonsexual recidivism (e.g., Andrews & Bonta, 1994; Gendreau, Little, & Goggin, 1996). Specifically, those sexual offenders with nonsexual reoffenses tended to be younger, single, and had a history of antisocial behavior.

Although there are no comparable meta-analyses regarding sexual recidivism for adolescent sexual offenders, there is an extensive literature related to general (i.e., nonsexual) recidivism with adolescents (e.g., Farrington, 1989; Loeber, 1990; Moffitt, 1993). Common risk factors for general recidivism among adolescents include antisocial personality, previous criminal involvement, negative self-image, economic disadvantage, parental rejection, negative parent-child relationships, interpersonal aggression, and poor social relationships.

The purpose of the present study was to examine the success of specialized adolescent sexual offender treatment by comparing subsequent recidivism rates between treated offenders and a comparison group. Although it was not possible to use random assignment at the inception of this study (in 1987), we ensured that a comprehensive battery of psychological tests was used in our clinical assessments. In addition to the clinical utility of these results, we planned to use test scores to control for any significant pre-treatment differences between the treatment and comparison groups on the variables thought to be related to recidivism.

A secondary goal of this study was to examine the predictive utility of the variables assessed with respect to both sexual and nonsexual recidivism. Given the recent focus in the literature regarding the prediction of sexual recidivism with adult sexual offenders (e.g., Hanson & Bussière, 1998; Proulx et al., 1997; Quinsey, Rice, & Harris, 1995), and the absence of empirical data regarding risk prediction for adolescent sexual offenders (Bonner, Marx, Thompson, & Michaelson, 1998; Ryan, 1998), we wanted to explore the relationships between a number of predictor variables and both sexual and nonsexual recidivism. We anticipated that nonsexual recidivism

would be related to factors predictive of general (nonsexual) juvenile delinquency, listed above, such as history of prior offenses, antisocial personality, low self-esteem, and family relationship difficulties, for example. Based on previous research with adult sexual offenders, we expected that sexual recidivism would be related specifically to sexual-assault variables such as deviant sexual interest/behavior and victim-selection factors (i.e., victim age, gender, and relationship).

METHOD

Treatment Program

The Sexual Abuse, Family Education and Treatment (SAFE-T) Program is a specialized, community-based program that provides sexual abuse specific assessment, treatment, consultation, and long-term support to (1) child victims of incest and their families—including adult incest offenders, (2) children with sexual behavior problems and their families, and (3) adolescent sexual offenders and their families. Following comprehensive clinical and psychometric assessments, treatment plans are individually tailored for each offender and family, and treatment goals are reviewed approximately every 4 to 6 months (see Worling, 1998, for a more detailed description of adolescent sexual offender treatment at the SAFE-T Program). Although the course of treatment depends on clinical need and the availability and willingness of family members, offenders are typically involved in concurrent group, individual, and family therapy. With respect to sexual offender specific treatment goals, we utilize the repertoire of cognitive-behavioral and relapse prevention strategies that are currently popular in adolescent and adult sexual offender treatment (e.g., Ryan & Lane, 1997) and we address issues related to denial and accountability, deviant sexual arousal, sexual attitudes, and victim empathy. Given that sexual deviance is only one aspect of the adolescent's life, however, related treatment goals include the enhancement of social skills, self-esteem, body image, appropriate anger expression, trust, intimacy, and so on. Furthermore, although we do not view families as responsible for the adolescents' choice to commit a sexual assault, we believe that the family is an important system in the adolescent's life and that the most significant change will result from family participation, wherever possible.

Participants

Recidivism data were collected—as of October 1997—for all 148 adolescent sexual offenders (139 males and 9 females) assessed at the SAFE-T Program between October 1987 and October 1995. The offenders were between 12 and 19 years of age ($M = 15.5$ years; $SD = 1.5$) at the point of initial contact. Offenders were living either at home (47%), in secure-custody facilities (25%), group homes (19%), foster homes (6%), or with friends or extended family (3%). The victims of the adolescent offenders were intrafamilial (28%), extrafamilial (55%), or both (17%); female (61%), male (16%), or both (23%); children (55%), peers/adults (35%), or both (10%) (see Demographic Variables below for specific definitions). All offenders were convicted of and/or acknowledged a sexual offence as defined by the Criminal Code of Canada. Most offenders (98% or 145 of 148) were referred for "hands on" offenses involving direct physical contact with their victims; three adolescents were referred for exhibitionism. The adolescents reflected the multicultural diversity of the Greater Toronto Area and none were below Borderline intellectual functioning (as the referral criteria at SAFE-T excludes lower functioning clients).

There were 58 adolescents (53 males and 5 females) in the Treatment group. A number of offenders dropped out of treatment within weeks or months while others dropped out following more than 1 year of treatment. We classified those offenders who dropped out *after* 12 months as members of the Treatment group. Given that it takes approximately 8 weeks to complete an assessment, provide feedback, and commence treatment in our program, offenders assigned to the

Treatment group received at least 10 months of treatment. Note that almost one third (18 out of 58) of the offenders in the Treatment group dropped out before completing treatment but subsequent to 12 months participation. Most offenders in the Treatment group (41 or 71%) participated in group, family, and individual therapy; nine participated in family and individual treatment; seven received group and individual, and one received individual treatment only. The average length of treatment, overall, was 24.43 months ($SD = 10.72$). The average length of concurrent group therapy was 13.51 months ($SD = 5.43$) and the mean length of concurrent family treatment was 16.02 months ($SD = 9.28$).

There were 90 adolescent sexual offenders in the Comparison group (86 males and 4 females). The largest subgroup ($n = 46$) received only an assessment by staff from the SAFE-T Program. Of these 46 Assessment Only adolescents, 30 were receiving treatment elsewhere (17 received specialized group therapy in the community; 13 participated in milieu treatment in a custody setting) and were recruited as comparison participants for this study. The remainder ($n = 16$) of the Assessment Only offenders were referred to the SAFE-T Program for an assessment only by the referral source. Other members of the Comparison group were 17 offenders who refused treatment (Treatment Refuser), and 27 offenders who dropped out of treatment before a 12 month period (Treatment Dropout). Overall, 67% (60 out of 90) of the adolescents in the Comparison group received some form of treatment outside of the SAFE-T Program.

Recidivism Data

Through an order from a Youth Court Judge, we accessed both youth (age 12–17) and adult (age 18 and over) records held by the Canadian Police Information Centre (CPIC). The CPIC database is a national registry of criminal arrests and convictions maintained by the Royal Canadian Mounted Police. The follow-up period ranged from a minimum of 2 years post initial contact to a maximum of 10 years ($M = 6.23$, $SD = 2.02$). Given that SAFE-T is a community-based (i.e., nonresidential) treatment program, a post initial contact follow-up period was used rather than post treatment as offenders are "at risk" both during and after treatment. Indeed, two of the three offenders in the Treatment group who had subsequent charges for sexual assault committed their offenses while in treatment. Criminal charges were used as the dependent measure, and the data were categorized as follows: sexual offenses (any Canadian Criminal Code charges of a sexual nature); violent nonsexual offenses (any charges involving actual or threatened physical harm to another such as assault, robbery, forcible confinement, and uttering threats); nonviolent offenses (e.g., theft, break and enter, breach of probation order, escaping lawful custody, possession of a weapon, trafficking in narcotics, driving while impaired, and causing a disturbance).

Materials

The Assessing Environments (III) Scale (AEIII) (Berger, Knutson, Mehm, & Perkins, 1988) is designed to measure punitive early family environments. The three scales examined in this investigation were Feelings of Parental Rejection, Negative Family Atmosphere (i.e., yelling, arguing, and name calling), and Physical Punishment—a measure of physically abusive discipline experienced in childhood. Based on responses from an overlapping clinical sample of adolescents and adults ($n = 209$), internal consistencies (KR-20) for these scales were .60, .80, and .82, respectively (Worling, 1995b). Evidence regarding the validity of the Physical Punishment scale as a measure of physical abuse has been documented by others (e.g., Bower & Knutson, 1996; Miller & Knutson, 1997; Rorty, Yager, & Rossotto, 1995).

The Tennessee Self-Concept Scale (TSCS) (Roid & Fitts, 1988) is a standardized measure of self-concept. The Total score was employed as a measure of self-esteem, and the Self-Criticism scale (modeled after the MMPI Lie scale) was used as an estimate of socially desirable responding.

Internal consistency (α) for the Total and Self-Criticism scales based on data from an overlapping sample ($n = 204$) were .94 and .75, respectively (Worling, 1995b).

The Youth Self-Report (YSR) (Achenbach, 1991) is a popular measure of an adolescent's social competencies and problem behaviors. The three scales examined in this study—together with internal consistency estimates (α) based on responses from participants in this study ($n = 121$)—were Social Problems (.71), Aggressive Behavior (.89), and Delinquent Behavior (.80).

The Beck Depression Inventory (BDI) (Beck & Steer, 1987) is a well-known screening measure for depression. Although originally designed for adults, the BDI has been shown to be a valid measure of depression for adolescents (e.g., Ambrosini, Metz, Bianchi, Rabinovich, & Undie, 1991; Becker, Kaplan, Tenke, & Tartaglini, 1991; Marton, Churchard, Kutcher, & Korenblum, 1991). Internal consistency (α) was estimated at .89 based on responses ($n = 209$) from an overlapping sample (Worling, 1995b).

The Buss-Durkee Hostility Inventory (BDHI) (Buss & Durkee, 1957) is one of the most widely used measures of hostility (Bushman, Cooper, & Lemke, 1991). The BDHI has been used in previous treatment outcome studies with sexual offenders (e.g., Craissati & McClurg, 1997; Lang, Pugh, & Langevin, 1988; Quinsey, Khanna, & Malcolm, 1998), and the BDHI has been shown to be a valid measure of hostility for sexual offenders (Hall, 1989). In a previous investigation ($n = 201$) with an overlapping sample, internal consistency (α) for the Total score was .93 (Worling, 1995b).

The Socialization (So) scale from the California Psychological Inventory (CPI) (Gough, 1987) is a popular measure of impulsive, antisocial traits commonly ascribed to psychopathy (e.g., Kosson, Kelly, & White, 1997). Harpur, Hare, and Hakstian (1989) found that the So scale is significantly correlated with the Psychopathy Checklist (Hare, 1991). Based on responses from participants in this study ($n = 118$), internal consistency (KR-20) for the So scale was .82.

The Multiphasic Sex Inventory-Juvenile Male-Research Edition (MSI-J-R) is an experimental juvenile version of the Multiphasic Sex Inventory (MSI) (Nichols & Molinder, 1984); a self-report test designed to assess the sexual attitudes, interests, and behaviors of male sexual offenders. Despite the lack of information regarding psychometric properties, the MSI-J-R is popular in the assessment of adolescent male sexual offenders (Bonner et al., 1998; Bourke & Donohue, 1996). The two scales used in this study were the Child Molest Total scale and the Rape Total scale. These scales are designed to reflect deviant sexual fantasies, grooming behaviors, and sexual assault activities related to offenses against children and peers/adults, respectively. Respondents are instructed to skip numerous items from the MSI-J-R if they do not apply (e.g., "Answer only if you have had sexual contact with a child."). As a result of the large number of missing data points, therefore, internal consistency (KR-20) estimates were calculated as follows: responses in the keyed direction were counted as such whereas non-keyed responses *and* blanks were counted in the non-keyed direction. Internal consistency (KR-20) estimates based on responses from male participants in this study ($n = 82$) were .93 for the Child Molest scale and .88 for the Rape scale.

Demographic Variables

Socioeconomic status (SES) was determined using the Blishen scales (Blishen & Carroll, 1978; Blishen & McRoberts, 1976). These rating scales are based on Canadian occupations, and the higher SES rating was assigned in the case of two-parent families. Scores for specific occupations were assigned to one of six categories according to criteria outlined by the authors. For ease of interpretation, however, SES categories were reversed so that a higher score reflected a higher SES category.

Following Worling (1995c), history of sexual victimization was coded as present if the adolescent reported (i) experiencing any unwanted sexual contact, or (ii) sexual contact, while under the

age of 13, with a person who was at least 4 years older than the adolescent at the time of the incident.

If an offender was at least 4 years older than the victim, and the victim was under the age of 12, the offense was categorized as one against a child. This age discrepancy has been used in previous investigations (e.g., Smith, Monastersky, & Deisher, 1987; Worling, 1995a). An offense was coded as "intrafamilial" if the offender was related to the victim. For participants in this study, this included sibling (full, half, step, adopted, and foster), cousin, and uncle.

Procedure

All participants completed the self-report measures individually at the point of initial assessment. If an individual experienced difficulty reading, the questionnaires were read aloud either by one of the investigators or an assistant. Participants were provided with detailed feedback from the assessment shortly following the completion of the questionnaires. Although most of the tests listed above were used at the inception of the study, others were available only at a later date. Furthermore, there were many occasions when it was not deemed clinically appropriate to give the entire battery of tests to every participant (e.g., presenting the MSI-J-R, with its explicit content, to an emotionally immature 12-year-old offender; asking an offender to complete a lengthy personality test when another agency had already completed a similar assessment). As a result, not all offenders completed every test.

RESULTS

Before comparing recidivism rates, the Treatment group and the three Comparison groups were contrasted on a number of potentially confounding variables to ensure that the groups were not significantly different. The data related to these comparisons are presented in Table 2 (non-dichotomous variables) and Table 3 (dichotomous variables). Remarkably, there were no significant group differences on any of the factors that have been linked to the risk of sexual or nonsexual recidivism; therefore, it was not necessary to control for any pre-treatment group differences in subsequent analyses.

Given that both date of initial assessment and date of subsequent criminal charges were known, recidivism rates were compared using Kaplan-Meier nonparametric estimates of the survival functions (Kaplan & Meier, 1958). Tests for differences between survival functions are reported as χ^2 values based on the Log Rank, or Mantel-Cox (Mantel, 1966) statistic. Greenhouse, Stangl, and Bromberg (1989) note that this form of χ^2 analysis is more meaningful and efficient than the more common χ^2 comparison of the simple proportions of treatment successes versus treatment failures.

Recidivism rates for the Treatment and Comparison groups are displayed in Table 4. The three Comparison groups (Assessment Only, Treatment Refuser, and Treatment Dropout) were not significantly different with respect to the frequency of subsequent charges for sexual offenses, χ^2 (2, $N = 90$) = 1.69, $p > .05$, violent nonsexual offenses, χ^2 (2, $N = 90$) = 0.53, $p > .05$, nonviolent offenses, χ^2 (2, $N = 90$) = 2.48, $p > .05$, or any criminal offenses, χ^2 (2, $N = 90$) = 1.21, $p > .05$. Therefore, adolescents in the Assessment Only, Treatment Refuser, and Treatment Dropout groups were combined into one larger group for comparison to the Treatment group.

Kaplan-Meier survival functions for sexual, violent nonsexual, and nonviolent recidivism are displayed in Figure 1. Significant differences were found between the Treatment and Comparison groups with respect to all categories of reoffending. The sexual assault recidivism rate for the Comparison group (18%) was 72% higher than the recidivism rate for the Treatment group (5%), χ^2 (1, $N = 148$) = 5.82, $p < .05$. For violent nonsexual offenses, the recidivism rate for the Comparison group (32%) was 41% higher than the reoffense rate for the Treatment group (19%),

Table 2. Means (and Standard Deviations) for Potentially Confounding Non-Dichotomous Variables by Offender Group

	Group			
Variable	Treatment $(N = 58)$	Treatment Dropout $(N = 27)$	Treatment Refuser $(N = 17)$	Assessment Only $(N = 46$
Offender age (years)	15.34 (1.57)	15.63 (1.44)	15.12 (1.41)	15.69 (1.44)
Number of past victims	3.98 (8.68)	2.85 (2.26)	2.00 (1.22)	5.10 (15.27)
Socioeconomic status[a]	2.05 (1.33)	1.96 (1.28)	2.12 (1.41)	1.98 (1.47)
Delinquent Behavior[b]	6.16 (4.39)	6.52 (4.33)	6.7 (4.03)	6.86 (4.03)
	$n = 49$	$n = 21$	$n = 14$	$n = 36$
Aggressive Behavior[b]	12.37 (8.14)	12.85 (6.97)	10.0 (5.16)	13.30 (7.17)
	$n = 49$	$n = 21$	$n = 14$	$n = 37$
Social Problems[b]	3.73 (3.14)	3.76 (1.87)	2.36 (2.62)	3.86 (2.65)
	$n = 49$	$n = 21$	$n = 14$	$n = 37$
Socialization (antisocial personality)[c]	37.68 (11.92)	38.70 (11.06)	39.08 (10.70)	36.54 (10.08)
	$n = 47$	$n = 23$	$n = 13$	$n = 35$
Hostility[d]	38.24 (12.95)	39.55 (12.17)	34.94 (12.88)	37.44 (12.33)
	$n = 50$	$n = 22$	$n = 16$	$n = 39$
Depression[e]	11.69 (9.52)	8.79 (5.75)	8.76 (10.16)	13.24 (10.99)
	$n = 51$	$n = 24$	$n = 17$	$n = 42$
Self-esteem[f]	44.54 (11.35)	46.25 (12.34)	44.94 (12.21)	45.97 (12.29)
	$n = 51$	$n = 24$	$n = 16$	$n = 36$
Self-criticism (socially desirable responding)[g]	45.78 (10.89)	47.42 (10.72)	48.0 (7.19)	45.92 (11.97)
	$n = 51$	$n = 24$	$n = 16$	$n = 36$
Rape Total[h]	2.93 (4.17)	3.29 (3.83)	2.22 (1.86)	4.07 (5.72)
	$n = 29$	$n = 14$	$n = 9$	$n = 30$
Child Molest Total[h]	11.28 (8.91)	6.71 (7.98)	6.89 (7.11)	9.07 (7.47)
	$n = 29$	$n = 14$	$n = 9$	$n = 30$
Physical Punishment[i]	2.42 (2.17)	2.75 (1.80)	3.59 (2.45)	3.19 (2.46)
	$n = 52$	$n = 24$	$n = 17$	$n = 37$
Feelings of Parental Rejection[i]	1.51 (1.21)	1.96 (1.98)	1.35 (1.32)	1.65 (1.65)
	$n = 52$	$n = 24$	$n = 17$	$n = 37$
Negative Family Atmosphere[i]	2.52 (2.24)	2.96 (2.53)	3.0 (2.15)	2.73 (2.42)
	$n = 52$	$n = 24$	$n = 17$	$n = 37$

[a]Kruskal-Wallis $H = 0.62$, $p = .89$; [b]Youth Self-Report (raw scores); [c]California Psychological Inventory. A lower Socialization score denotes a more antisocial orientation; [d]Buss-Durkee Hostility Inventory, Total score; [e]Beck Depression Inventory; [f]Tennessee Self-Concept Scale, Total score; [g]Tennessee Self-Concept Scale (a lower Self-Criticism score denotes increased socially desirable responding); [h]Multiphasic Sex Inventory—Juvenile Male-Research Edition; [i]Assessing Environments (III) Scale.
All Fs < 1.71, all ps $> .16$.

χ^2 (1, $N = 148$) $= 3.97$, $p < .05$. The reoffense rate for nonviolent offenses for the Comparison group (50%) was 59% higher than the rate found for the Treatment group (21%), χ^2 (1, $N = 148$) $= 14.76$, $p < .01$. Finally, the Comparison group (54%) was 35% more likely to have been charged with any criminal offense in contrast to the Treatment group (35%), χ^2 (1, $N = 148$) $= 7.60$, $p < .01$.

To examine the relationship between recidivism and the dichotomous variables, Kaplan-Meier survival curve estimates (χ^2) for recidivists and nonrecidivists were compared using the Log Rank statistic. For non-dichotomous variables, we examined the area under the receiver-operating-characteristic (ROC) curve (Lusted, 1971). A ROC curve is the plot of the true-positive rate ("hit rate") as a function of the false-alarm rate at specific intervals of the variable in question. ROC curve values can range from .5 (chance, or no relationship) to 1.0 (perfect relationship). For a variable that is positively correlated with recidivism, the ROC curve value can be interpreted as the probability that a randomly selected recidivist will have a higher score than a randomly selected nonrecidivist (Rice & Harris, 1995). Mossman (1994) and Rice and Harris (1995) have recom-

Table 3. Number (and Percent) of Offenders Within Categories of Potentially Confounding Dichotomous Variables by Offender Group

	Group			
Variable	Treatment ($n = 58$)	Treatment Dropout ($n = 27$)	Treatment Refuser ($n = 17$)	Assessment Only ($n = 46$)
Offender Characteristics				
Male	53 (91%)	26 (96%)	16 (94%)	44 (96%)
Victim of sexual abuse	26 (45%)	12 (44%)	7 (41%)	19 (41%)
Family Composition				
Natural parents still together	24 (41%)	14 (52%)	4 (24%)	24 (52%)
Other[a]	34 (59%)	13 (48%)	13 (76%)	22 (48%)
Place of Residence				
Home[b]	34 (58%)	16 (59%)	8 (47%)	25 (54%)
Group home	12 (21%)	6 (22%)	5 (29%)	5 (11%)
Secure custody	12 (21%)	5 (19%)	4 (24%)	16 (35%)
Victim Characteristics				
Ever a child victim	44 (76%)	13 (48%)	10 (59%)	29 (63%)
Ever an intrafamilial victim	28 (48%)	10 (37%)	7 (41%)	22 (48%)
Ever a same sex victim	25 (43%)	10 (37%)	6 (35%)	16 (35%)
Any Previous Criminal				
Charges	5 (9%)	5 (19%)	3 (18%)	8 (17%)

[a]Parents were single parent, one natural and one step parent, or grandparents; [b]Includes living in foster home, with other relatives, alone, or with friends.
All χ^2s < 6.73, all ps > .08.

mended that ROC curve estimates be used when examining the accuracy of recidivism predictions as the ROC statistic is not significantly influenced by either selection ratio or base rate. This is an important consideration given the low base rate of sexual recidivism based on criminal charges. ROC curve estimates were calculated using the ROCKIT software (Metz, Herman, & Roe, 1998). This program has algorithms for categorizing continuously distributed data and for comparing two ROC curves using the z_Δ statistic. Given that not all participants completed every test, we examined z_Δ values for partially-paired data sets. Bivariate r values were computed for all variables to demonstrate the direction of the relationship between predictor and recidivism variables and for comparability to past (and future) research.

The relationships between the predictor variables and sexual, violent nonsexual, and nonviolent recidivism are displayed in Table 5. Offenders charged with a subsequent sexual reoffense were more likely to have higher Child Molest Total scores; therefore, they reported more past and/or present sexual fantasies of children, more child-victim grooming behaviors, and more intrusive

Table 4. Number (and Percent) of Offenders in Treatment and Comparison Groups with Subsequent Criminal Charges by Category of Offense

	Group			
Reoffense Category	Treatment ($n = 58$)	Treatment Dropout ($n = 27$)	Treatment Refuser ($n = 17$)	Assessment Only ($n = 46$)
Sexual	3 (5%)	7 (26%)	3 (18%)	6 (13%)
Violent Nonsexual[a]	11 (19%)	9 (33%)	7 (41%)	13 (28%)
Nonviolent[b]	12 (21%)	13 (48%)	6 (35%)	26 (57%)
Any	20 (35%)	13 (48%)	9 (53%)	27 (59%)

[a]Includes offenses such as assault, robbery, forcible confinement, and uttering threats; [b]Includes offenses such as theft, break-and-enter, breach of probation order, escape lawful custody, possession of a weapon, trafficking in narcotics, and driving while impaired.
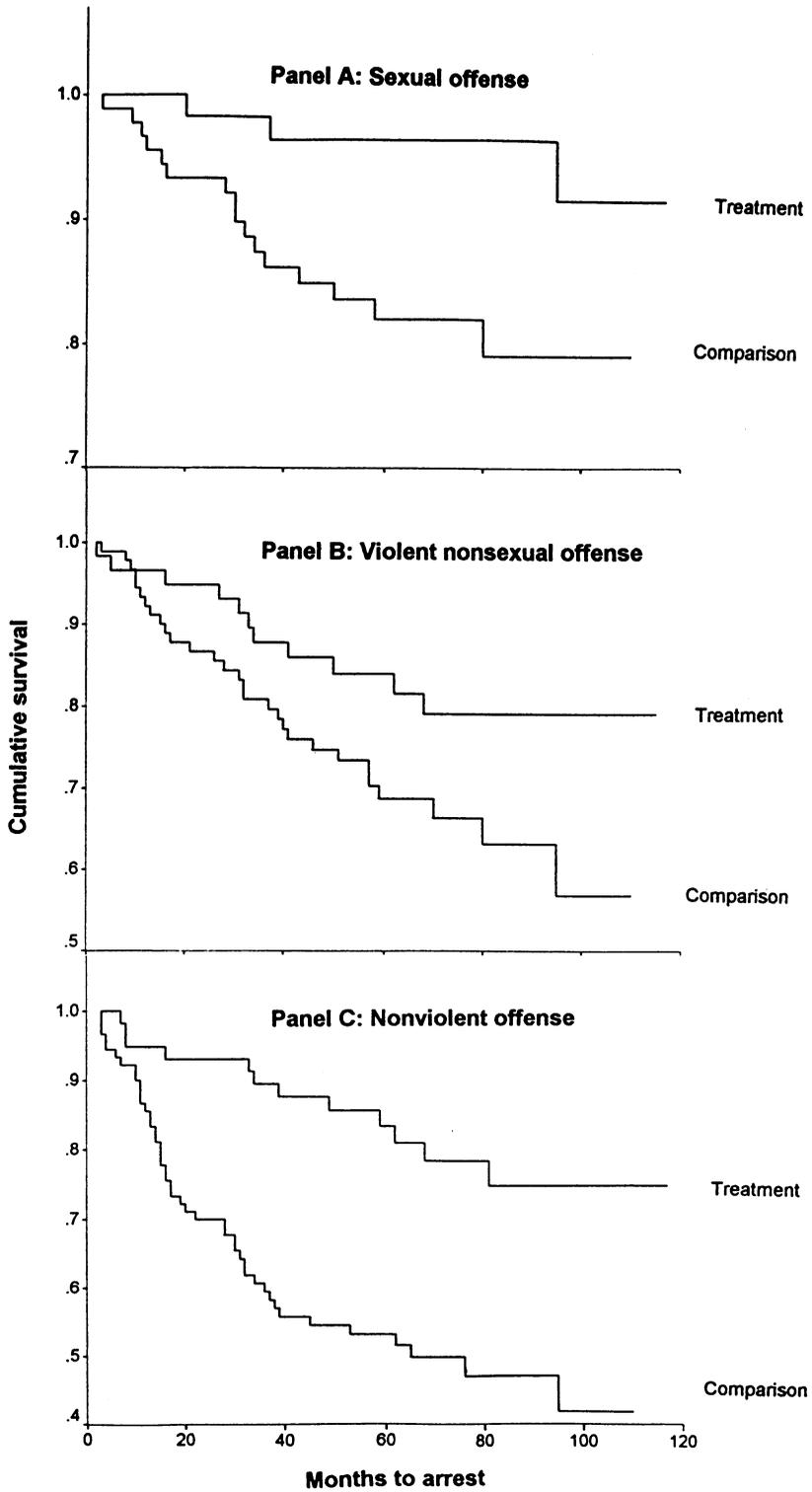
Figure 1. Kaplan-Meier survival curve estimates for the Treatment and Comparison groups regarding sexual, violent nonsexual, and nonviolent offenses.

Table 5. Relationship Between Predictor Variables and Sexual, Violent Nonsexual, and Nonviolent Recidivism

Variable		Sexual Recidivism			Violent Nonsexual Recidivism		Nonviolent Recidivism	
	n	r	χ^{2a}	r	χ^2	r	χ^2	
Dichotomous Variables (1 = yes; 0 = no)								
Offender is male	148	.10	1.28	.09	0.92	.09	0.83	
Victim of sexual abuse	148	−.05	0.21	.24	8.51**	.18	4.95*	
Any previous criminal charges	148	.13	3.79	.23	12.93**	.24	14.40**	
Ever a child victim	148	−.01	0.14	−.06	0.89	−.20	6.32**	
Ever an intrafamilial victim	148	−.02	0.11	−.03	0.15	−.11	1.53	
Ever a same sex victim	148	−.01	0.06	.08	0.60	−.06	0.59	
	n	r	ROC[b] (SE)	r	ROC (SE)	r	ROC (SE)	
Non-dichotomous Variables								
Offender age	148	−.02	.515 (.072)	−.01	.508 (.053)	.02	.510 (.047)	
Number of past victims	148	.09	.633 (.090)	−.03	.535 (.061)	.05	.598 (.057)	
Socioeconoic status	148	.05	.523 (.091)	−.26	.720 (.052)**	−.25	.664 (.058)**	
Delinquent Behavior[c]	121	−.21	.711 (.066)**	.31	.691 (.058)**	.19	.616 (.051)*	
Aggressive Behavior[c]	121	−.09	.576 (.072)	.24	.648 (.059)*	.20	.623 (.051)*	
Social Problems[c]	121	−.04	.529 (.083)	.12	.583 (.063)	.16	.598 (.053)	
Socialization (antisocial personality)[d]	118	.03	.519 (.062)	−.25	.695 (.054)**	−.23	.636 (.051)**	
Hostility[e]	127	−.14	.642 (.075)	.20	.621 (.055)*	.21	.622 (.050)*	
Depression[f]	134	−.10	.603 (.078)	.07	.529 (.060)	.14	.575 (.052)	
Self-esteem[g]	127	.00	.532 (.057)	−.20	.640 (.057)*	−.28	.668 (.047)**	
Self-criticism (socially desirable responding)[h]	127	−.07	.588 (.073)	.16	.599 (.056)	.06	.541 (.051)	
Rape Total[i]	82	.22	.688 (.110)	.29	.592 (.104)	.16	.534 (.081)	
Child molest Total[i]	82	.21	.701 (.090)*	.15	.624 (.072)	.06	.582 (.062)	
Physical Punishment[j]	130	.00	.523 (.076)	.11	.588 (.053)	.09	.555 (.053)	
Feelings of Parental Rejection[j]	130	.22	.644 (.097)	.11	.562 (.060)	.17	.612 (.052)*	
Negative Family Atmosphere[j]	130	.00	.510 (.098)	.06	.559 (.054)	.18	.629 (.049)**	

[a]χ^2 values ($df = 1$) are based on comparisons of Kaplan-Meier survival curve estimates using the Log Rank statistic; [b]area under the receiver operating characteristic (ROC) curve; [c]Youth Self-Report (raw scores); [d]California Psychological Inventory. A lower Socialization score denotes a more antisocial orientation; [e]Buss-Durkee Hostility Inventory, Total score; [f]Beck Depression Inventory; [g]Tennessee Self-Concept Scale, Total score; [h]Tennessee Self-Concept Scale (a lower Self-Criticism score denotes increased socially desirable responding); [i]Multiphasic Sex Inventory—Juvenile Male-Research Edition; [j]Assessing Environments (III) Scale.
* $p < .05$; ** $p < .01$.

sexual assault activities with children. Sexual recidivists were also *less* likely to report recent, *nonsexual* delinquent behavior. There was no significant difference between Child Molest Total and Delinquent Behavior scores in relation to subsequent sexual recidivism, $z_\Delta = 0.16$, $p = .87$, and no additional variables were predictive of sexual recidivism.

Nonsexual recidivism (violent and nonviolent) was related to variables traditionally linked to nonsexual reoffending with adolescents such as antisocial personality, history of delinquent and aggressive behaviors, criminal history, low self-esteem, and economic disadvantage. A history of childhood sexual abuse was also related to subsequent nonsexual (violent and nonviolent) recidivism but not to sexual recidivism. There were no predictive variables unique to violent nonsexual recidivism; however, nonviolent recidivism was additionally related to a negative family environment (i.e., yelling and arguing) and perceived rejection by parents. Furthermore, offenders who originally committed sexual assaults against peers or adults were more likely to be nonviolent recidivists than those offenders who originally committed sexual assaults against children. For both violent nonsexual and nonviolent recidivism, no one predictor was statistically superior, all $z_{\Delta s} < .83$, all $ps > .36$.

DISCUSSION

Results support the efficacy of specialized community-based treatment at the SAFE-T Program for reducing the risk of adolescent sexual recidivism. Relative to the Comparison group, there was a 72% reduction in sexual recidivism for adolescents completing at least 12 months of assessment and treatment. Furthermore, although previous research has found that many treated sexual offenders are likely to be charged with subsequent nonsexual offenses, participation in specialized treatment was associated with a 41% reduction in violent nonsexual recidivism and a 59% reduction in nonviolent reoffending.

The methodology used in this investigation offers several advantages compared to previous studies. First, our recidivism data are based on an average follow-up interval of 6 years rather than the more typical mean follow-up period of 2 or 3 years. Given that risk of reoffense continues for many years, brief follow-up intervals necessarily yield lower recidivism rates. Of course, it is important to note, however, that the average age of participants at the time of follow-up was only 21.5 years. It will be essential for researchers to follow adolescent sexual offenders well beyond this age. Second, we did not include data from offenders for whom we had less than 2 years of follow-up. Including information from these offenders would artificially decrease recidivism results given that it often takes time for charges to be entered into a police database. Third, although 8 of the 10 previously published studies are single-group, follow-up designs, we collected data from a comparison group of offenders who did not receive specialized treatment. Fourth, offenders in the Comparison group were not significantly different from those in the Treatment group on many variables thought to be related to both sexual and nonsexual recidivism such as sexual deviance, history of previous offending, victim-selection characteristics, antisocial personality, aggression, and family environment. Fifth, all non-dichotomous variables were assessed using psychological tests with established psychometric properties. Sixth, although most authors have used more conservative estimates of reoffending, such as criminal convictions or self-report, we used criminal charges as the outcome measure. Recall that the use of convictions or self-report leads to significantly lower estimates of reoffending. Finally, a national database of police information was used rather than a provincial or local source of information. It is noteworthy that four offenders (6% of recidivists) acquired criminal charges in other provinces throughout Canada.

Despite these advantages, the most serious threat to the validity of these results is that offenders were not randomly assigned to Treatment and Comparison groups. Although the two groups were not significantly different with respect to any of the variables assessed at the point of initial contact, it is possible that there were pre-treatment differences on some unknown factor(s) related to subsequent risk. A second limitation is that we relied on official data (criminal charges) as an estimate of reoffending. Although the relative difference in recidivism rates between groups would presumably not be influenced by this, our results probably underestimate the actual rate of reoffending. Finally, although it is certainly encouraging that treatment reduced the risk of both sexual and nonsexual recidivism, it is impossible to isolate the specific interventions that lead to success for each offender. As Hanson (1997) noted, however, no single study will ever demonstrate the specific mechanism that reduces the risk of sexual aggression. Rather, the answer to this question will depend on the collection and synthesis of data from numerous treatment outcome studies (Hanson, 1997; Miner, 1997; Quinsey et al., 1993).

When comparing our results with the published literature, the follow-up study by Borduin, Henggeler, Blaske, and Stein (1990) is the only other recidivism study with a reasonably lengthy mean follow-up interval (3 years), a comparison group, and a less conservative estimate (criminal charges) of recidivism (see Table 1). Although their study had a small number of participants, there are a number of similarities to the present investigation. First, the Multisystemic treatment approach outlined by the authors is similar to treatment at the SAFE-T Program in that the overriding goal is to reduce the risk of recidivism by enhancing family and peer relationships—in

addition to targeting more offense-specific goals such as victim empathy, cognitive distortions, and relapse-prevention plans. Second, both approaches stress that specific treatment goals vary according to the particular strengths and needs of the offenders and their families. Third, family and dyadic (e.g., marital, father-son, mother-son) therapy are offered where appropriate. Finally, Borduin and colleagues reported an 83% reduction in sexual assault recidivism and a 50% reduction in nonsexual recidivism. These results are very similar to ours and, taken together, suggest that treatment for adolescent sexual offenders may be most successful when the family is included wherever possible. Unfortunately, the use of family therapy in the treatment of adolescent sexual offenders has declined considerably within the past decade (Burton, Freeman-Longo, & Fiske, 1998).

Conclusions from some of the earliest research with adolescent sexual offenders stressed that there was little risk of sexual recidivism once offenders were detected by authorities. In Canada, for example, Atcheson and Williams (1954) noted that "it is extremely unlikely that the male juvenile sex offender will reappear on a second sex charge" (p. 369). Similarly, in the United States, Markey (1950) commented that "a grave outlook, from the standpoint of future criminal sexuality, was not offered in any of the cases" (p. 731). Almost half a century later, this viewpoint is still widely held as authors continue to point to the low published recidivism rates and conclude that few adolescent sexual offenders present a risk of reoffending sexually (e.g., Brannon & Troyer, 1995; Bremer, 1992; Lab, Shields, & Schondel, 1993; Milloy, 1998). Although the low frequency of sexual recidivism in the literature is attributable, in part, to the brevity of follow-up periods, the use of convictions or self-report data, and the exclusive reliance on local records, an entry in a police database for a sexual offense is dependent on many factors—in addition to the offender's decision to reoffend. Each sexual recidivism entry is contingent on the victim's willingness to report the crime, the ability of the police and/or child protection agency to investigate the complaint (if the report is made to them), the decision of police to lay charges that reflect the sexual nature of the crime, and the accurate and timely entry of the charge into a computerized database. Of course, when criminal conviction is used as the estimate of reoffending, the database entry is additionally dependent on charges not being dropped or altered to a nonsexual charge through plea bargaining and/or on the outcome of the trial.

Given that an entry in a police database is doubtlessly an underestimate of reoffending, therefore, another important finding from this study is that after an average of just 6 years, almost one out of five offenders not receiving specialized treatment was charged with a subsequent sexual offense. This suggests that, contrary to previous assumptions, the risk of sexual recidivism for adolescent sexual offenders is more than trivial. It is interesting to note that in an 8-year follow-up study of adolescent sexual offenders who were incarcerated in a correctional school, Rubinstein, Yeager, Goodstein, and Lewis (1993) found that 37% incurred subsequent sexual assault charges.

Of course, it is equally important to stress that not all adolescent sexual offenders continue to offend once they are detected. Even without treatment, many adolescent offenders are presumably able to refrain from accruing subsequent charges once they have been identified. It is crucial, therefore, for researchers and clinicians to develop valid and reliable measures of the risk to reoffend so that interventions can be targeted appropriately to those adolescents who represent the highest level of risk.

The most comprehensive analysis of risk prediction with sexual offenders is presented by Hanson and Bussière (1998) in their meta-analysis of data from more than 23,000 primarily adult male sexual offenders. Although our study involved a comparatively small number of adolescent sexual offenders, there are a number of interesting similarities and differences with respect to risk prediction. It is essential to stress that the results of our study are based on one group of adolescents and should not, therefore, be used to make clinical or forensic decisions. Rather, these results are presented in an effort to address the paucity of empirical data regarding risk prediction for adolescent sexual offenders and to stimulate further research.

The most salient similarity between the results presented by Hanson and Bussière (1998) regarding primarily adult male sexual offenders and the adolescents in the present study is that sexual interest in children was found to be a significant predictor of subsequent sexual recidivism. Furthermore, this variable was not predictive of subsequent *nonsexual* offending in either investigation. As Hanson and Bussière (1998) noted, despite the trend in the correctional literature to minimize differences between sexual and nonsexual offenders, "separate processes appear to contribute to sexual offending" (p. 357). It is important to stress that in our study, however, sexual interest in children was assessed by self-report; the data presented by Hanson and Bussière (1998) are based on the results of phallometric assessment. Given the ethically questionable practice of phallometric assessment with adolescents (Worling, 1998), it is encouraging to see the potential predictive utility of adolescents' self-reported sexual interest in children.

Another similarity between the results from the adult literature and the adolescents in the present study is that sexual recidivism was not predicted by measures of personal distress such as depression, anger, or self-esteem or by estimates of family relationship difficulties. Although these variables likely have etiological significance for sexual aggression, and the amelioration of these difficulties is probably critical to treatment success for both adolescents and adults, there is little support that *pre*-treatment levels of personal distress or family dysfunction can predict subsequent sexual aggression. It is also interesting to note that in neither study was SES or history of childhood sexual victimization related to subsequent sexual recidivism.

We found that a low degree of self-reported delinquent behavior was a significant predictor of sexual recidivism whereas a high level of delinquency was predictive of subsequent nonsexual charges. While it is possible that this result is only a statistical artifact, it may also be related to the notion that sexual recidivism has a unique, non-delinquent component. Perhaps those adolescent sexual offenders who have no other outlets for antisocial behavior (i.e., those with low Delinquent Behavior scores) other than sexual offending will remain at greater risk for continued sexual aggression. Conversely, those sexual offenders with high levels of nonsexual delinquency will continue to be at a higher risk to engage in nonsexual delinquent behavior. It will be important to determine whether this is observed in future studies, or whether this result is unique to the participants in this investigation.

Contrary to expectations from research with adult sexual offenders, there was no relationship between sexual recidivism and victim-preference factors such as victim age, gender, or relationship to offender. In support of this finding, neither Kahn and Chambers (1991) nor Smith and Monastersky (1986) found that offender-victim relationship was significantly predictive of recidivism for adolescent sexual offenders. This may be attributable to the fact that, by virtue of their development, adolescents are still forming and refining their sexual interests and preferences. Therefore, propensities for specific victims may not be as entrenched and, thus, not as predictive as for adults.

Hanson and Bussière (1998) noted that age was inversely related to risk for sexual (and nonsexual) recidivism for adults; however, we did not find this relationship. This is most likely a result of the fact that we had a restricted age range (12 to 19 years) that was closely tied ($SD = 1.5$) to the mean of 15.5 years. Hanson and Bussière (1998) also found that the presence of any previous charges (sexual or nonsexual) was predictive of subsequent sexual aggression. We found a similarly weak ($r = .13$) but nonsignificant correlation, and this may be a result of our small sample size and the fact that the index sexual assault was the first official criminal charge for many of the offenders in this study. In Canada, only those aged 12 and over can be charged with a criminal offense. Given the average age of 15.5 years for participants in this investigation, therefore, few amassed previous criminal charges.

With respect to nonsexual recidivism, Hanson and Bussière (1998) found that the risk of subsequent offenses was predicted by variables traditionally linked to criminal behavior in adult males such as age (young), marital status (single), and history of previous criminal offenses.

Similarly, we found that both violent nonsexual and nonviolent recidivism were related to those variables known to be predictive of *non*sexual delinquency with adolescents. Specifically, nonsexual recidivism was related to socioeconomic disadvantage, low self-esteem, antisocial personality, heightened anger, recent delinquent and aggressive behavior, and previous criminal charges. Of course, neither marital status nor age were significant predictors for the adolescents in this study given the lack of variability with these factors. Although there were no variables uniquely predictive of violent nonsexual recidivism, per se, nonviolent recidivism was additionally related to negative parent-child relationships in addition to those listed above. As noted previously, family relationship difficulties have been demonstrated to be predictive of general (nonsexual) delinquency in the literature. Finally, it is interesting to note that in both the present study and the Hanson and Bussière (1998) meta-analysis, those offenders who sexually assaulted children were less likely to commit subsequent nonsexual offenses.

Given the notable absence of published outcome data regarding specialized treatment for adolescent sexual offenders, some authors (e.g., Milloy, 1998) have questioned not only the efficacy of specialized treatment, but also the notion that sexual offenders are different from nonsexual offending adolescents. The results of the present study suggest that not only does specialized treatment reduce the risk of subsequent sexual and nonsexual offending for adolescent sexual offenders, but that the risk of further sexual aggression is related to factors that are unrelated to nonsexual offending. Of course, additional studies will be necessary to isolate the specific treatment mechanisms that are responsible for positive outcomes and to identify reliable predictors of sexual and nonsexual recidivism. To date, it appears that comprehensive treatment that combines a strong family-relationship component along with certain offense specific interventions may be most successful for adolescent sexual offenders.

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RESUMEN

Objetivo: Evaluar el éxito de un programa de tratamiento especializado comunitario para reducir el recidivismo en adolescentes ofensores sexuales, y para explorar la utilidad predictiva de una serie de variables en relación con el recidivismo sexual y no sexual.

Método: Se recogieron una serie de datos sobre el recidivismo (cargos criminales) de 58 ofensores que participaron en un programa de tratamiento especializado (Programa SAFE-T) durante al menos doce meses. También se recogieron datos de un grupo comparación formado por 90 adolescentes que únicamente recibieron una evaluación ($n = 46$), que rechazaron el tratamiento ($n = 17$) o que lo abandonaron antes de los doce meses ($n = 27$). Se relaizó un seguimiento de los adolescentes con un rango entre dos y diez años ($M = 6.23$, $SD = 2.02$). Los ofensores cumplimentaron una batería de tests psicológicos que permitió obtener datos normalizados sobre su funcionamiento social, sexual y familiar.

Resultados: Las tasas de recidivismo de agresiones sexuales, agresiones violentas de carácter no sexual, y agresiones no violentas, para los adolescentes que recibieron tratamiento fue del 5.17%, 18.9% y 20.7% respectivamente. El grupo comparación tuvo tasas significativamente más altas de recidivismo para agresiones sexuales (17.8%), agresiones violentas de carácter no sexual (32.2%) y agresiones no violentas (50%). El recidivismo de agresiones sexuales fue predicho por el intrés sexual en niños/as. El recidivismo no sexual estuvo relacionado con factores habitualmente predictores de la delincuencia general, tales como una historia de agresiones previas, baja autoestima, y personalidad antisocial.

Conclusiones: Los resultados apoyan la eficacia del tratamiento para adolescentes ofensores sexuales y son consistentes con la noción de que el recidivismo sexual puede ser predicho por factores únicos no relacionados con el recidivismo general (de carácter no sexual).