

Approximately 6.5 years after their conviction, the percentage of incest offenders who had committed a sexual, violent, or criminal offense of any kind was 6.4, 12.4, and 26.7, respectively. The sexual recidivists scored higher on the Michigan Alcohol Screening Test (MAST), and the Psychopathy Checklist-Revised (PCL-R). The violent recidivists had higher MAST and PCL-R scores as well as more violence in their police records. Regarding any criminal recidivism, recidivists were older and reported higher rates of being physically abused, and being removed from their homes prior to 16 years of age. They demonstrated more hostility on the Buss-Durkee Hostility Inventory, and higher MAST and PCL-R scores. They also had more previous charges or convictions for sexual, violent, and criminal acts. A combination of total criminal offenses, PCL-R, age, and the number of previous sexual offenses correctly classified 97.6% of the non-recidivists and 35.4% of the recidivists for any reoffense.

Prediction of Recidivism in Incest Offenders

**PHILIP FIRESTONE
JOHN M. BRADFORD
MARCIA McCOY
DAVID M. GREENBERG
MICHEL R. LAROSE**
University of Ottawa
SUSAN CURRY
Royal Ottawa Hospital

The large number of incest offenders as well as the psychological and financial consequences of their offenses has raised serious public policy questions concerning their management by the Criminal Justice System. Hanson, Steffy, and Gauthier (1993) have stressed the need for valid empirical information to avoid the potential problems associated with poor management of sex offenders and their risk for reoffending. Although there is a growing body of literature related to sexual recidivism, a recent comprehensive meta-analysis found that only 6 of 61 studies that met inclusion criteria were

Authors' Note: This research was supported in part by the Ministry of the Solicitor General of Canada. The views expressed are those of the authors and are not necessarily those of the Ministry of the Solicitor General of Canada. Address all correspondence to Professor Dr. Philip Firestone, School of Psychology and Department of Psychiatry, 120 University Private, Ottawa, Ontario, Canada, K1N 6N5; phone: (613) 562-5800, #4444; fax: (613) 562-5253; e-mail: fireston@uottawa.ca.

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concerned with child molesters, and fewer studied pure groups of incest offenders (Hanson & Bussière, 1998). Quinsey, Lalumière, Rice, and Harris (1995) reviewed published papers on recidivism in sex offenders and were able to locate four studies with incest offenders only that were published between 1962 and 1981 (three British studies and one from California). They reported the average weighted sexual reoffense rate for these investigations was 8.5%. To date, the limited research indicates incest offenders recidivate at a lower rate than extrafamilial child molesters, and studies suggest variables predicting recidivism may differ for the groups as well (Hanson et al., 1993; Hanson & Bussière, 1998; Quinsey et al., 1995).

The present study attempts to add to the body of literature related to recidivism in incest offenders (IO). However, there are two unique aspects to the design, both of which are related to the participants under consideration. To the authors' knowledge, this is the first investigation to exclude incest offenders who have ever been charged with or convicted of extrafamilial child molestation or sexual offenses against adults. This results in a group of IO that are homogeneous relative to their sexual offending. Furthermore, most recidivism studies with sex offenders have examined participants who were incarcerated in prisons, maximum security psychiatric hospitals, or have just been released from correctional institutions. The resulting data may therefore not be representative of the greater group of sex offenders coming to the attention of the courts, and the data also may not be accurate reflections of the factors related to recidivism in more diverse or less disturbed populations of offenders. In the present investigation, 80% of the IO were assessed just prior to or just after their court appearance or sentencing. A variety of well known and validated psychological tests were used in addition to phallometric assessments and documented police records.

Recidivism was divided into three categories in a fashion similar to Proulx et al. (1997) and Rice, Quinsey, and Harris (1991). Sexual recidivism was defined as any charge or conviction for a sexual offense after the index offense. Violent recidivism included any charge or conviction for nonsexual violent and sexual offenses. Criminal recidivism was defined as any charge or conviction noted in the Canadian Police Information Center's (CPIC) documentation. A cumulative hierarchy in which each additional category subsumes that of the previous category was adopted to account for plea bargaining distortions and to allow comparison with previous recidivism research with child molesters (Proulx et al., 1997; Rice et al., 1991).

METHOD

Participants

All participants were assessed at the Royal Ottawa Hospital Sexual Behaviors Clinic between 1982 and 1992. The 251 participants were males, 18 years of age or older at the time of their index offense, at least 5 years older than their victims, and had all been convicted of a hands-on sexual offense against one or more related male or female family member (biological, step-child, niece, grandchild, sibling) who was younger than the age of 16 at the time of the offense. If the police records indicated a participant had ever been charged with or convicted of an offense against an adult or against an unrelated child, he was not included. If there was evidence of previous sexual offenses against related children, they were kept in the study.

Assessment Procedures

Sexual functioning

The Derogatis Sexual Functioning Inventory (DSFI) is designed to assess general and specific dimensions of sexual functioning (Derogatis, 1978, 1980). The DSFI collects information using numerous items at once in order to grasp "the fundamental components judged essential to effective sexual behavior" (Derogatis, 1980, p. 117). The 10 subscales are Information, Experience, Sexual Drive, Sexual Attitude, Psychological Symptoms also known apart from the DSFI as the Brief Symptom Inventory (BSI), Affect, Gender Role Definition, Sexual Fantasy, Body Image, and Satisfaction. The Sexual Functioning Index (SFI) is a global measure derived by summing the 10 subtest scores. It provides an overall measure of an individuals' level of sexual functioning. The DSFI has been used with large nonforensic samples, but its use with sexual offenders is limited. When using the DSFI, Pawlak, Boulet, and Bradford (1991) found that extrafamilial child molesters endorsed more fantasy themes than did the incestuous offenders. However, incestuous offenders scored higher on sexual experience and satisfaction scales. There is some suggestion that sexual offenders show high levels of sexual dissatisfaction (Hanson, Cox, & Wozzcsyna, 1991).

Hostility

The Buss-Durkee Hostility Inventory (BDHI) contains 75 true-false statements that provide a measure of seven constructs representing general hostility. Higher scores indicate the respondent has endorsed more hostile items. The BDHI consists of six assault subscales: Assault, Indirect Aggression, Irritability, Negativism, Verbal Aggression, Resentment, and Suspicion. An additional construct captured by the BDHI is Guilt, reflecting the degree of guilt feelings reported by the participant. This scale is part of the inventory but not included in the total score. There is a substantial body of validation evidence to support this widely used inventory (Buss, 1961; Buss & Durkee, 1957). A total score of 38 and above is considered high according to Buss and Durkee (1957). Among sexual offenders, BDHI scores for violent rapists have been significantly higher than those for nonoffending controls (Rada, Laws, & Kellner, 1976).

Alcohol Abuse

The Michigan Alcoholism Screening Test (MAST), a 24-item self report inventory, is used to identify behaviors indicative of alcohol abuse (Gibbs, 1983; Selzer, 1971; Selzer, Vinokur, & van Rooijen, 1975). The validity and reliability of this instrument are well established (Selzer, 1971; Selzer et al., 1975). The internal consistency has a reported overall alpha coefficient of 0.87 and a validity coefficient of $r = 0.79$ ($\gamma = 0.95$), and it is relatively unaffected by age or by denial of socially unacceptable characteristics (Magruder-Habid, Durand, & Frey, 1991; Magruder-Habid, Stevens, & Alling, 1993). Scores of 5 or 6 are considered suggestive of alcohol problems, and a score of 7 or more is considered strongly indicative of alcohol abuse (Allnutt, Bradford, Greenberg, & Curry, 1996). The MAST has been found to correlate with *DSM-III-R* criteria for alcohol dependence (Magruder-Habid et al., 1993). The MAST has been extensively used as a screening tool for alcoholism, and many studies have used samples of sex offenders (e.g., Allnutt et al., 1996; Hucker, Langevin, & Bain, 1988; Rada, 1975; Rada et al., 1976).

Psychopathy

The Psychopathy Checklist-Revised (PCL-R) consists of 20 clinical rating scales designed to assess behaviors and personality characteristics considered fundamental to psychopathy (Hare, 1991). Rigorous testing has

indicated that the PCL-R is a psychometrically sound instrument; the reported alpha coefficient, aggregated across seven samples of incarcerated males from Canada, the United States, and England was .87 (Hare, Forth, & Strachan, 1992). Valid PCL-R ratings can be made on the basis of high quality archival information (Harris, Rice, & Quinsey, 1994; Quinsey, Rice, & Harris, 1995). The PCL-R is beginning to receive widespread use in sex-offender research (Quinsey et al., 1995; Serin, Malcolm, Khanna, & Barbaree, 1994). The existence of two factors was replicated using various samples: (a) the degree of personality, interpersonal, and affective traits deemed significant to the construct of psychopathy, and (b) the degree of antisocial behavior, unstable, and corrupted lifestyle (Hare et al., 1990). Hare et al. (1990), using five prison samples ($N = 925$) and three forensic samples ($N = 356$), found the correlation between the two factors averaged .48. Previous studies have found the interrater reliability and internal consistency of both factors to be high despite the small number of items per factors (Hare, 1991; Hare et al., 1990).

In the present investigation, the PCL-R was completed from descriptive material contained in institutional files by two research assistants. A random sample of 100 clinic files was independently rated by each researcher, resulting in satisfactory interrater reliability correlation $r = .88$, $p < .0001$.

Cognition Scale

The Cognition Scale, which was designed for use with adult child molesters, is composed of 29 statements that reflect values about adult sexual contact with children. Factor analysis has indicated that the Cognition Scale is unidimensional (Abel et al., 1989). Scores range from 1 to 5, and lower scores indicate a greater degree of permissiveness toward adult sexual contact with children (i.e., deviation). This scale has demonstrated good discriminant validity in that groups of child molesters have been distinguished from nonoffending controls (Stermac & Segal, 1989). A Pearson product-moment coefficient of .76 indicates good test-retest reliability (Abel et al., 1989).

Measurement of Sexual Arousal

Changes in penile circumference in response to audio/visual stimuli were measured by means of an Indium-Gallium strain gauge and were monitored by a Farrell Instruments CAT200. These data were then processed in an IBM compatible computer for storage and printout.

Stimuli presentation. The order of stimulus presentation, held constant for all participants, was computer controlled using MPV-Forth version 3.05 software provided by Farrell Instruments. Participants were presented with one or more of three series of audiotapes, according to the nature of the participants' sexual offense. The audiotapes consisted of 120-second vignettes that described sexual activities varying in age, gender, and degree of consent, coercion, and/or violence portrayed (Abel, Blanchard, & Barlow, 1981). Each participant was presented with a full set containing one vignette from each category following instructions to allow normal arousal to occur. The female child series consisted of descriptions of sexual activity with a female partner/victim for eight categories. The male child series consisted of eight corresponding vignettes involving a male partner/victim, but they also included one scenario involving an adult female partner. For each of the female child and male child series, two equivalent scenarios for each category were included. The categories were (a) child initiates, (b) child mutual, (c) nonphysical coercion of child, (d) physical coercion of child, (e) sadistic sex with child, (f) nonsexual assault of child, (g) consenting sex with female adult, and (h) sex with female child relative (incest). The audiotape series used to identify sexual attraction to rape included two scenarios of two-minute duration for each of three categories: (a) consenting sex with adult female, (b) rape of adult female, (c) nonsexual assault of adult female.

Scoring. The Pedophile Index was computed by dividing the highest response to the child initiates or child mutual stimulus by the highest response to an adult consenting stimulus. The Pedophile Assault Index was computed by dividing the highest response to an assault stimulus involving a child victim (nonphysical coercion of child, physical coercion of child, sadistic sex with child, or nonsexual assault of child) by the highest response of the child initiates or child mutual stimulus. The Rape Index was computed by dividing the response to the rape stimulus by the response to the adult consenting stimulus. The Assault Index was computed by dividing the response to a nonsexual assault stimulus by the response to the adult consenting stimulus.

Criminal Offense History

Offense information was gathered from the CPIC at the Ottawa Police Station, a national data base of criminal arrests and convictions including INTERPOL reports from the Royal Canadian Mounted Police. For an offender to be considered eligible to reoffend, he must have been free to

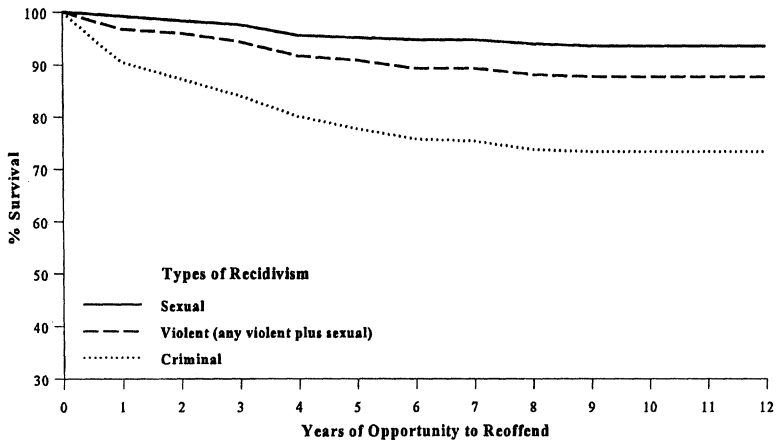


Figure 1: Survival Rates for Incest Offenders

commit a crime; he could not have been incarcerated or in secure custody for reasons of mental illness.

Treatment of Data

Prior to performing statistical tests, the data were screened to ensure assumptions underlying tests were not violated. Outlying cases were detected by using a criterion of plus or minus three standard deviations from the mean or by visual inspection of normal probability plots. Values of outlying cases were adjusted upward or downward according to the direction of the problem. This method is appropriate when case retention is desirable and does not unduly influence the group mean (Tabachnick & Fidell, 1989). The values reported in the tables are posttransformation.

RESULTS

Figure 1 describes the survival rates of the incest offenders. The follow-up period ranged from 2.5 to 12 years after the conviction for the index offense, with an average of 6.7 ($SD = 2.8$) years. The percentage of men who had committed a sexual, violent, or criminal offense by the 12th year was 6.4, 12.4, and 26.7 respectively. As revealed in the figure, by the end of the 5th

year, recidivism rates for sexual, violent, or criminal acts of any sort were approximately 4.8%, 9.2%, and 22.3%, respectively.

Sexual Recidivism

As indicated in Table 1, none of the differences in demographic, self-reported, or file-gathered characteristics achieved statistical significance. The analyses of the psychological test scores (see Table 2) revealed that the recidivists, compared with the nonrecidivists, rated themselves higher on the MAST (25.8 vs. 9.6)¹ and were rated higher on the PCL-R total score (21.7 vs. 17.9). The only other statistically significant finding (see Table 3) was that the recidivists had more sexual charges and/or convictions prior to the index offenses compared with the nonrecidivists (.9 vs. .2).

Violent Recidivism

Table 1 indicates there were no significant differences between recidivists and nonrecidivists in demographic and self-reported characteristics. The analyses of the psychological test data (see Table 2) revealed that the recidivists, compared to the nonrecidivists, rated themselves higher on both the BDHI Suspicion factor (5.8 vs. 4.1) and the MAST (19.5 vs. 9.2). They were also rated higher on the PCL-R, Factor 2 (8.9 vs. 6.6) and the PCL-R, total score (21.0 vs. 17.7). The only other statistically significant findings (see Table 3) were that the recidivists had more violent and criminal charges and/or convictions prior to the index offenses, compared with the nonrecidivists (1.0 vs. .5, and 3.7 vs. 2.2, respectively).

Criminal Recidivism

Table 1 reveals that for any new criminal charges or convictions, recidivists (compared to nonrecidivists) were significantly younger (35.0 years old vs. 42.0 years old), and they reported higher incidences of history of drug abuse (37.5% vs. 18.0%), history of violence (49.2% vs. 18.4%), family history of alcoholism (64.9% vs. 43.7%), family history of violence (73.1% vs. 45.5%), and family history of criminality (28.1% vs. 11.6%). They also reported that before 16 years of age they were more likely to have been physically abused (58.0% vs. 34.5%) and were more frequently removed from their home (46.6% vs. 22.3%).

The psychological test scores described in Table 2 indicated that on the DSFI, the recidivists—compared to the nonrecidivists—rated themselves as

(text continues on p. 523)

TABLE 1: Demographic and Self-Reported Characteristics of Incest Offenders (in percentages)

Variables	Sexual Recidivism		Violent Recidivism		Criminal Recidivism		t or χ^2	df	p <
	Yes (n)	No (n)	Yes (n)	No (n)	Yes (n)	No (n)			
Age	39.7 ±13.34 (16)	40.1 ±11.06 (235)	37.7 ±11.54 (31)	40.5 ±11.12 (220)	35.0 ±10.87 (67)	42.0 ±10.75 (184)	-4.49 ^a	249	.001
IQ	84.3 ±13.91 (12)	89.9 ±13.82 (100)	84.3 ±13.20 (16)	90.2 ±13.88 (96)	86.5 ±14.55 (37)	90.7 ±13.42 (75)			
Education	9.2 ±2.78 (14)	10.0 ±2.70 (211)	9.6 ±2.48 (28)	10.0 ±2.74 (197)	9.5 ±2.23 (60)	10.1 ±2.85 (165)			
Gender of victim									
Female	87.5 (14)	86.0 (202)	90.3 (28)	85.5 (188)	89.6 (60)	84.8 (156)			
Male	6.3 (1)	8.1 (19)	6.5 (2)	8.2 (18)	6.0 (4)	8.7 (16)			
Male & female	6.3 (1)	6.0 (14)	3.2 (1)	6.4 (14)	4.5 (3)	6.5 (12)			
History of drug abuse	33.3 (5)	22.5 (51)	34.5 (10)	21.6 (46)	37.5 (24)	18.0 (32)	10.09 ^a	1	.001
History of violence	28.6 (4)	26.7 (56)	38.5 (10)	25.3 (50)	49.2 (30)	18.4 (30)	21.44 ^a	1	.001
Family history of alcoholism	33.3 (4)	49.8 (109)	58.3 (14)	47.8 (99)	64.9 (37)	43.7 (76)	7.75 ^a	1	.005
Family history of drug abuse	0 (0)	12.0 (26)	16.7 (4)	10.8 (22)	16.4 (9)	9.8 (17)			
Family history of mental illness	30.8 (4)	18.1 (39)	25.0 (6)	18.0 (37)	26.8 (15)	16.2 (28)			
Family history of violence	60.0 (9)	52.2 (95)	64.0 (16)	51.2 (88)	73.1 (38)	45.5 (66)	11.67 ^a	1	.001
Family history of criminality	23.1 (3)	15.3 (33)	24.0 (6)	14.7 (30)	28.1 (16)	11.6 (20)	8.74 ^a	1	.003
Intact family	73.3 (11)	64.0 (142)	60.0 (18)	65.2 (135)	54.7 (35)	68.2 (118)			
Physical abuse < 16	28.6 (4)	41.3 (76)	41.7 (10)	40.2 (70)	58.0 (29)	34.5 (51)	8.60 ^a	1	.003
Sexual abuse < 16	37.5 (6)	38.3 (90)	35.5 (11)	38.6 (85)	46.3 (31)	35.3 (65)			
Placed outside of the home < 16	38.5 (5)	28.2 (57)	40.0 (10)	27.4 (52)	46.6 (27)	22.3 (35)	12.15 ^a	1	.001

NOTE: N-values are in parentheses.

a. A significant difference was apparent between recidivists and nonrecidivists for criminal offenses.

TABLE 2: Psychological Test Scores for Incest Offenders

Variables	Sexual Recidivism		Violent Recidivism		Criminal Recidivism		t	df	p <
	Yes	No	Yes	No	Yes	No			
DSFI									
Information	36.8 ±9.79 (13)	37.7 ±10.71 (223)	38.1 ±11.75 (27)	37.6 ±10.52 (209)	37.2 ±10.28 (59)	37.8 ±10.79 (177)			
Experience	41.1 ±10.73 (13)	42.1 ±9.30 (224)	41.4 ±9.58 (27)	42.1 ±9.35 (210)	41.8 ±9.76 (60)	42.1 ±9.24 (177)			
Sexual drive	50.4 ±9.26 (13)	46.1 ±10.02 (223)	48.7 ±10.23 (27)	46.1 ±9.97 (209)	49.3 ±10.77 (60)	45.3 ±9.56 (176)	2.68 ^c	234	.008
Sexual attitude	37.2 ±8.98 (13)	36.6 ±7.42 (224)	38.7 ±9.37 (27)	36.4 ±7.20 (210)	37.9 ±8.01 (60)	36.2 ±7.28 (177)			
Psychological symptoms	38.6 ±12.88 (13)	41.9 ±13.00 (224)	41.7 ±15.47 (27)	41.7 ±12.68 (210)	39.4 ±13.47 (60)	42.5 ±12.77 (177)			
Affects	40.4 ±14.00 (13)	39.5 ±11.95 (223)	41.3 ±14.43 (27)	39.3 ±11.72 (209)	38.3 ±12.87 (60)	40.0 ±11.76 (176)			
Gender role definition	40.3 ±7.26 (13)	41.8 ±9.10 (223)	41.0 ±7.64 (27)	41.8 ±9.17 (209)	40.0 ±7.98 (60)	42.3 ±9.27 (176)			
Sexual fantasy	41.7 ±12.74 (13)	41.1 ±10.40 (224)	42.4 ±12.77 (27)	41.0 ±10.20 (210)	43.2 ±12.18 (60)	40.4 ±9.81 (177)			
Body image	38.4 ±9.51 (12)	37.8 ±8.81 (224)	41.0 ±9.78 (26)	37.5 ±8.64 (210)	39.4 ±9.74 (59)	37.4 ±8.46 (177)			
Satisfaction	50.5 ±8.36 (13)	49.0 ±8.65 (224)	52.6 ±9.16 (27)	48.7 ±8.48 (210)	49.5 ±9.01 (60)	49.0 ±8.52 (177)			
Sexual functioning index	28.5 ±10.55 (12)	29.3 ±10.81 (222)	31.9 ±12.10 (26)	28.9 ±10.59 (208)	29.4 ±10.89 (58)	29.2 ±10.77 (176)			
BDHI									
Assault	3.6 ±3.23 (12)	3.4 ±2.58 (224)	4.2 ±2.88 (26)	3.3 ±2.57 (210)	4.3 ±2.60 (59)	3.2 ±2.56 (177)	2.96 ^c	234	.003
Indirect aggression	4.0 ±2.49 (12)	4.3 ±2.34 (224)	4.7 ±2.66 (26)	4.3 ±2.30 (210)	4.9 ±2.64 (59)	4.1 ±2.21 (177)			
Irritability	4.8 ±3.16 (12)	4.3 ±2.83 (224)	4.8 ±3.15 (26)	4.2 ±2.81 (210)	4.9 ±3.00 (59)	4.1 ±2.77 (177)			
Negativism	2.1 ±1.40 (12)	2.1 ±1.37 (224)	2.1 ±1.55 (26)	2.1 ±1.35 (210)	2.4 ±1.51 (59)	1.9 ±1.30 (177)			
Verbal aggression	6.0 ±3.46 (12)	6.2 ±2.68 (224)	6.8 ±3.12 (26)	6.1 ±2.66 (210)	7.0 ±2.76 (59)	5.9 ±2.66 (177)	2.62 ^c	234	.009
Resentment	3.8 ±2.05 (12)	3.0 ±2.07 (224)	3.5 ±2.06 (26)	3.0 ±2.07 (210)	3.6 ±1.97 (59)	2.8 ±2.07 (177)	2.67 ^c	234	.008
Suspicion	6.0 ±2.76 (12)	4.2 ±2.59 (224)	5.8 ±2.50 (26)	4.1 ±2.58 (210)	5.7 ±2.39 (59)	3.8 ±2.54 (177)	3.08 ^b	234	.002
							4.95 ^c	234	.001
Guilt	5.3 ±2.83 (12)	5.2 ±2.55 (220)	4.9 ±2.78 (26)	5.3 ±2.53 (206)	5.5 ±2.53 (59)	5.1 ±2.56 (173)			
Total score	30.3 ±15.21 (12)	27.4 ±11.63 (224)	31.8 ±14.33 (26)	27.0 ±11.40 (210)	32.8 ±12.94 (59)	25.8 ±10.92 (177)	4.03 ^c	234	.001
Abel's Cognition Scale	4.7 ±1.17 (4)	4.4 ±1.50 (181)	4.5 ±1.44 (14)	4.4 ±1.50 (171)	4.3 ±1.67 (38)	4.5 ±1.43 (147)			

MAST	25.8 ±21.63 (5)	9.6 ±13.80 (155)	19.5 ±17.92 (14)	9.2 ±13.63 (146)	17.2 ±16.85 (34)	8.2 ±12.95 (126)	2.54 ^a 2.09 ^b 2.87 ^c	158 14.5 44.1	.012 .055 .006
PCL-R									
Factor 1	9.9 ±2.59 (15)	8.9 ±3.17 (215)	9.6 ±2.62 (29)	8.8 ±3.20 (201)	10.0 ±2.62 (65)	8.5 ±3.2 (165)	3.77 ^c	143	.001
Factor 2	9.1 ±4.50 (11)	6.7 ±4.49 (136)	8.9 ±3.76 (20)	6.6 ±4.57 (127)	10.0 ±4.28 (47)	5.58 ±3.9 (100)	2.1 ^b 6.34 ^c	145 145	.038 .001
Total score	21.7 ±5.84 (15)	17.9 ±6.85 (215)	21.0 ±5.67 (29)	17.7 ±6.90 (201)	22.3 ±6.29 (65)	16.4 ±6.3 (165)	2.10 ^a 2.45 ^b 6.39 ^c	228 228 228	.036 .015 .001

NOTE: DSFI = Derogatis Sexual Functioning Inventory; BDHI = Buss-Durkee Hostility Inventory; MAST = Michigan Alcoholism Screening Test; PCL-R = Psychopathy Checklist-Revised. *N*-values are in parentheses.

- A significant difference was apparent between recidivists and nonrecidivists for sexual offenses.
- A significant difference was apparent between recidivists and nonrecidivists for violent offenses.
- A significant difference was apparent between recidivists and nonrecidivists for criminal offenses.

TABLE 3: Phallometric Responses and Criminal History for Incest Offenders

Variables	Sexual Recidivism		Violent Recidivism		Criminal Recidivism		t	df	p <
	Yes	No	Yes	No	Yes	No			
Pedophile Index	1.2 ± 1.14 (15)	.9 ± .91 (229)	.9 ± 1.01 (29)	.9 ± .92 (215)	.9 ± 1.00 (64)	.9 ± .91 (180)			
Pedophile Assault Index	.8 ± .55 (15)	.7 ± .76 (231)	.8 ± .73 (29)	.7 ± .75 (217)	.9 ± .76 (64)	.7 ± .74 (182)			
Rape Index	.4 ± .54 (14)	.6 ± .75 (225)	.6 ± .82 (29)	.6 ± .73 (210)	.6 ± .86 (62)	.5 ± .70 (177)			
Assault Index	.2 ± .43 (14)	.2 ± .42 (225)	.3 ± .49 (29)	.2 ± .41 (210)	.2 ± .44 (62)	.2 ± .41 (177)			
Number of previous offenses ^a									
Sexual	.9 ± 1.61 (16)	.2 ± .55 (235)	.6 ± 1.26 (31)	.2 ± .55 (220)	.5 ± 1.09 (67)	.1 ± .42 (184)	1.92 ^a	15.2	.037
Violent	1.1 ± 1.73 (16)	.5 ± 1.25 (235)	1.0 ± 1.72 (31)	.5 ± 1.21 (220)	1.2 ± 1.91 (67)	.3 ± .86 (184)	2.95 ^c	73.4	.004
Criminal	3.8 ± 5.06 (16)	2.2 ± 4.60 (235)	3.7 ± 5.20 (31)	2.2 ± 4.53 (220)	5.0 ± 6.55 (67)	1.4 ± 3.23 (184)	1.84 ^b	31.7	.038
							3.64 ^c	75.9	.001
							1.73 ^b	249	.043
							4.28 ^d	78.0	.001

NOTE: The number of previous offenses data were taken from the Canadian Police Information Center (CPIC). *N*-values are in parentheses.

a. A significant difference was apparent between recidivists and nonrecidivists for sexual offenses.

b. A significant difference was apparent between recidivists and nonrecidivists for violent offenses.

c. A significant difference was apparent between recidivists and nonrecidivists for criminal offenses.

having a higher Sexual Drive (49.3 vs. 45.3). On the BDHI, the recidivists rated themselves higher than the nonrecidivists on Assault (4.3 vs. 3.2), Verbal Aggression (7.0 vs. 5.9), Resentment (3.6 vs. 2.8) and Suspicion (5.7 vs. 3.8). They also had a significantly higher BDHI total score (32.8 vs. 25.8). The recidivists, compared with the nonrecidivists, scored higher on the MAST (17.2 vs. 8.2), PCL-R Factor 1 (10.0 vs. 8.5), Factor 2 (10.0 vs. 5.5), and total score (22.3 vs. 16.4). The only other statistically significant findings indicated that the recidivists, compared with the nonrecidivists, had a history of more charges and/or convictions prior to the index offense for sexual offenses (.5 vs. .1), violent offenses (1.2 vs. .3) and criminal offenses (5.0 vs. 1.4).

The step-wise discriminant function analysis to assess the combination of factors that most successfully distinguished between groups in terms of criminal recidivism used age, the BDHI total score, the MAST, the PCL-R total score, and the CPIC sexual, violent, and criminal scores. The result was a significant discriminant function $\mu^2(4, N = 230) = 66.96, p < .001$, with only CPIC criminal, PCL-R total score, age, and CPIC sexual being retained for optimal prediction. The procedure correctly classified 80% of the original group, 97.6% of the nonrecidivists, and 35.4% of the recidivists. This represents a rate of improvement over chance of 20.7% for the nonrecidivists and 12.3% for the recidivists.

DISCUSSION

In studying these results, one must heed the fact that recidivism rates of sex offenders are gross underrepresentations of the real number of offenses committed, no matter what criteria are used (Furby, Weinrott, & Blackshaw, 1989; Hanson & Bussière, 1998; Finkelhor, 1984). Nevertheless, with this restraint, the primary objective of the present study was to identify recidivism risk factors for the type of incest offender normally appearing before the courts. Because 78% of the present participants were men assessed prior to sentencing for their sexual crimes and the total number of documented sexual convictions for the group was less than 65, the group is much more representative of the incest offenders processed by the courts than most previous publications. Furthermore, unlike most previous research, this was a pure group of sex offenders in that they had no other type of sexual offense on record (e.g. rape or extrafamilial child molestation). In a 12-year period, the recidivism rates in the present sample of men were 6.4%, 12.4%, and 26.7% for sexual, violent, or criminal offense of any sort. It appeared that the majority of recidivists did so by the 5th year because the respective rates at that time were

4.8%, 9.2%, and 22.3%. It is noteworthy that in the present group of offenders, only 59.4% were imprisoned for their offense, 3.2% were sentenced to intermittent jail time, and 37.2% were given suspended sentences and/or placed on probation.

It is evident that the IO, as a group, were considerably less antisocial than previously studied groups of extrafamilial child molesters or mixed populations of men that had sexually offended against children. For example, in a recent report, 41.9% of child molesters who had been incarcerated in an Ontario maximum-security provincial correctional institution had previous sexual convictions (Hanson et al., 1995). In addition, we recently completed an investigation with extrafamilial child molesters in the same clinic from which the present participants were drawn in the same manner, and we found that 15% of these men had a history of sexual convictions (Firestone et al., in press). In the present sample, only 6% of the men had a sexual conviction on record. Furthermore, whereas a mixed group of child molesters that recidivated from a maximum-security psychiatric hospital had an average of 10.9 criminal charges prior to their index offense (Proulx et al., 1997), the group in the present study had an average of five criminal charges or convictions. As would be expected, on the whole, the recidivism rates in a 12-year period for each category of offense were also considerably lower than previously published Canadian rates for men who sexually offended against children (Hanson & Bussière, 1998; Rice et al., 1991; Proulx et al., 1997). It is also important to note that the recidivism rates appear lower than those from our other studies of recidivism in which the comparable rates for rapists were 16%, 26%, and 53% (Firestone et al., 1998), and in other studies, the extrafamilial child molesters' rates were 15.1%, 20.3%, and 41.6% (Firestone et al., in press).

In terms of sexual recidivism, our 6.4% reoffense rate is remarkably similar to the 8.5% computed by Quinsey et al. (1995). Quinsey et al. go on to caution that this is too low a base rate to predict sexual recidivism. In the present study, only three of the measures discriminated sexual recidivists from non-recidivists: MAST, PCL-R total score, and the number of previous sexual charges/convictions. Although alcohol abuse is often associated with criminality (Bradford, Greenberg, & Motayne, 1992) and has been reported as occurring in a high proportion of sexual sadists (Allnutt et al., 1996), the documented evidence for alcohol abuse in sexual recidivism is limited (Hanson & Bussière, 1998). Because MAST scores of five to six are generally considered suggestive of alcohol abuse, and seven or higher are considered indicative of alcoholism (Gibbs, 1983; Selzer et al., 1975), the sexual recidivists' mean score of 25.8 and the nonrecidivists' mean score of 9.6 indicate that alcohol is a major problem for almost all incest offenders, particularly for

the recidivists. As for prior sexual offenses, the present findings support previous suggestions that prior sexual offense history is significantly related to recidivism in all sex offenders (Hanson & Bussière, 1998; Proulx et al., 1997). Psychopathy as measured by the PCL-R total score continues to demonstrate its potency as a measure in the prediction of criminal behavior. The PCL-R total scores of 21.7 and 17.9 for these groups place them at the 56th and 39th percentile of male forensic patients. Echoing Quinsey et al. (1995), due to the small number of participants in the sexual recidivism category, the discriminant function was of little value in predicting which men would reoffend based on these variables.

As with sexual recidivism, measures related to alcohol abuse, psychopathy, and previous offending differentiated violent offenders from those that did not reoffend. It is interesting but not surprising that the PCL-R, Factor 2 differentiated recidivists from nonrecidivists, as did the total score. Factor 2 is related to criminal lifestyle, as are the CPIC data. The PCL-R was rated before the CPIC data were available, which attests to its sensitivity if comprehensive file information on offenders were available. Once again, due to the low base-rate problem, the discriminant function was of little value in assisting in the prediction of violent recidivism.

Several variables discriminated between men who recidivated with any criminal offense and those who did not recidivate. Similar to most reports, it was evident that those who recidivated tended to be younger by 7 years at the time of index offense (Hanson & Bussière, 1998). They also had a history of more drug abuse and more violence, and they came from families with more pathology—as evidenced by higher rates of family alcoholism, violence, and criminality. Furthermore, these individuals were more likely to suffer more physical abuse and were more frequently removed from their homes prior to or during adolescence. Most of these factors have previously been reported to be associated with recidivism in sex offenders released from prisons or maximum-security psychiatric facilities (Hanson & Bussière, 1998; Rice et al., 1991; Quinsey et al., 1995). The psychological tests revealed that general hostility, as measured by the BDHI total score, was able to discriminate between the groups, as was the measure of alcohol abuse (MAST). The PCL-R was also successful in discriminating between criminal recidivists and nonrecidivists. The present CPIC information supports prior research concerning the higher offense history in men that go on to reoffend (Hanson & Bussière, 1998).

The role of phallometric measures in the assessment and treatment of sex offenders has become quite controversial legally and ethically (Card & Olsen, 1996; Laws, 1996). Furthermore, there has been conflicting evidence for its ability to discriminate between nonoffender and offender populations

(Barbaree, Baxter, & Marshall, 1989) and between various offender populations (Baxter, Marshall, Barbaree, Davidson, & Malcolm, 1984; Laws, Gulayets, & Frenzel, 1995; Quinsey et al., 1995). Some of the conflicting findings are undoubtedly related to procedural differences (Lalumière & Quinsey, 1993) and to the populations of offenders examined (Furby et al., 1989). A recent meta-analysis suggested that sexual preference for children, as measured by phallometric methods, was the single largest predictor of sexual recidivism for child molesters, although many of the studies reviewed did not differentiate between child molesters and incest offenders (Hanson & Bussière, 1998). Our previous work supports this notion. In our study with rapists, phallometric assessment was not sensitive to recidivism (Firestone et al., 1998). However, our study with extrafamilial child molesters did find that phallometric measures were related to recidivism, but it was the pedophile assault index—not the pedophile index—that discriminated sexual, violent, and criminal recidivists from those who did not reoffend (Firestone et al., in press). The findings from the present study suggest that deviant sexual arousal is not useful for predicting recidivism in incest offenders, and our findings support the findings of others with regard to incest offenders (Barbaree & Marshall, 1989; Proulx et al., 1990). Nevertheless, the phallometric assessments were helpful in demonstrating that as a group incest offenders show considerable deviant arousal. In our clinic and others (Marshall, Barbaree, & Eccles, 1991), deviant arousal indices of .75 to .80 are considered cause for concern. In our population, the mean pedophile and pedophile assault indices ranged from .7 to 1.2 for both recidivists and nonrecidivists. This revealed that their deviant sexual arousal is disturbingly high, although not related to recidivism. There is a need for more in-depth studies of subgroups of incest offenders for whom deviant sexual arousal is an important component of their offense pattern. It is conceivable there is a subgroup of incest offenders with the highest deviant arousal patterns that are at the greatest risk. As an example, clinical experience has shown that older offenders generally show lower levels of phallometric responses than younger offenders, and this age heterogeneity in our sample and others may preclude the usefulness of this tool for predictive work. Further investigations stratifying incest offenders by variables such as age or biological and step-child status of victims may prove fruitful in studying the role of deviant sexual arousal in recidivism. We were unable to find support for this in unreported statistical analyses, which was largely due to diminishing numbers of participants resulting from the creation of more homogeneous groups.

The small number of incest offenders in the sexual- and violent-reoffense categories precluded exploration of statistical prediction based on the variables that discriminated between the groups. However, for recidivism for any

criminal charges/offenses, the discriminant function based on age, PCL-R total score, and history of sexual offenses and criminal offenses of any sort was successful in improving prediction over chance by 20.7% for the nonrecidivists and 12.3% for the recidivists. Our better rates of prediction for nonrecidivists compared to recidivists is common in the sex-offender literature and is largely a function of the low base rates of sex offenses. This issue has been covered in some detail in recent publications (Hanson & Bussière, 1998; Quinsey et al., 1995).

Psychometric tools have generally shown an insensitivity to recidivism in sex offenders (Proulx et al., 1997; Hall, 1990; Hanson et al., 1991, 1993; Hanson & Bussière, 1998). Nevertheless, the ability of the Buss-Durkee Hostility Inventory to predict criminal recidivism was significant, although many of the average scores were not in the clinical range. The DSFI and Abel's Cognition Scale were insensitive to recidivism. However, the DSFI was revealing. A Sexual Functioning Index score of 29 to 32 places men at the second to fifth percentile of the population at large. This suggests IO—recidivists or not—have very serious problems related to general sexual functioning.

The present investigation is limited by several features. The fact that it only considered offenses brought to the attention of the police undoubtedly underreports actual reoffending, and it may distort the results in an unknown manner. Furthermore, we studied only static features of incest offenders in the prediction of recidivism. For example, we did not determine the role of treatment in recidivism. The low number of previous offenses and the low incarceration rate suggest that many of these men did not experience intensive treatment. We did not ascertain which participants were interested in treatment, entered treatment, or changed due to treatment. These factors are becoming increasingly important because there is growing evidence that some treatment programs may decrease the rates of recidivism, particularly for incest offenders (Owen & Steele, 1991). Another shortcoming is the small number of sexual and violent recidivists, which limited the ability of some statistical analyses and the ability to further stratify based on variables such as gender of victim and/or age of offender. Nevertheless, the findings highlight several important issues. First of all, the results of our investigation add to the growing body of literature, which indicates that rapists, child molesters, and incest offenders constitute very different populations of offenders. For recidivism research, the simple division of groups into rapists, child molesters, and incest offenders results in very different recidivism rates, and it appears different factors are predictive of recidivism. The findings argue against combining these offender groups for any research purpose. Perhaps the most profitable approach to prediction of recidivism may

creating omnibus prediction scales. The development of separate scales for each offender group, which use different actuarially based variables weighted to reflect their sensitivity with the different offender groups, warrants further investigation.

NOTE

1. Unless otherwise indicated, the values in parentheses indicate the average number of responses.

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Philip Firestone, Ph.D., is a professor in the departments of psychology and psychiatry at the University of Ottawa. He has published extensively in the areas of attentional-deficit and impulse-control disorders and the effects of childhood sexual abuse. His current interests are related primarily to the assessment, treatment, and long-term outcome of individuals convicted of sexual offenses.

John M. Bradford, M.B., Ch.B., FRCPC, is the clinical director of the Forensic Program and the Sexual Behaviours Clinic at the Royal Ottawa Hospital. He is a professor of psychiatry and the head of the Division of Forensic Psychiatry, Faculty of Medicine at the University of Ottawa. He has recently been appointed as a member of the Task Force on Sexually Dangerous Persons by the president of the American Psychiatric Association, and he was a member of the National Working Group on Violence of the National Institute of Mental Health in the United States. He has published extensively in many areas of forensic psychiatry, particularly in the area of assessment and treatment of the paraphilias.

Marcia McCoy, Ph.D., received her doctorate in clinical psychology from the University of Ottawa in 1997. This research was part of her Ph.D. Dissertation.

David M. Greenberg, M.B., Ch.B., F.F.Psych., M.Med.(Psych.), FRCPC, is an associate professor of psychiatry at the University of Ottawa. He is also the director of research in the forensic division of Royal Ottawa Hospital. He is the current president of the Canadian Academy of Psychiatry, and he is the law and chair of the forensic section of the Canadian Psychiatric Association. He has appeared frequently as an expert witness, and

he has extensively lectured nationally and internationally. He has authored or coauthored more than 30 journal articles and book chapters.

Michel R. Larose received his B.A. (Honours) in psychology from the University of Ottawa in 1996. He is currently a graduate student at Loma Linda University, Canadian Campus, in the Marital and Family Therapy Program. His major research interest is in factors related to recidivism in sex offenders.

Susan Curry received her bachelor of arts with honors in psychology from Carleton University, Canada, in 1988. For the past 10 years, she has conducted and coordinated research for the forensic program and the Sexual Behaviours Clinic at the Royal Ottawa Hospital.