

# The Screening Scale for Pedophilic Interests Predicts Recidivism Among Adult Sex Offenders With Child Victims

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The Screening Scale for Pedophilic Interests (SSPI; Seto & Lalumière, 2001), a brief measure of sexual attraction to prepubescent children that is based on victim characteristics, was used in two samples of 113 and 145 adult male sex offenders with child victims. In both samples, the SSPI was significantly and positively correlated with an index of phallometrically-measured sexual arousal to stimuli depicting prepubescent children. It was also significantly and positively correlated in both samples with violent recidivism (meaning either nonsexually violent offenses or sexual offenses involving physical contact with a victim), and positively correlated with sexual recidivism, significantly so in the second, larger sample. Focusing on the larger sample, the SSPI added to the predictive accuracy of a measure of general antisociality (the Psychopathy Checklist-Revised), while the phallometric index of sexual arousal did not add predictive accuracy once the other two measures were entered. The SSPI also yielded the same interaction between anomalous sexual interests and psychopathy we had previously reported using phallometric data (Rice & Harris, 1997). These findings suggest that the SSPI has predictive utility among adult male sex offenders with child victims, and accounts for variance in sexual offending that is not explained by phallometric testing.

**KEY WORDS:** pedophilia; phallometric testing; sex offenders; recidivism.

## INTRODUCTION

Researchers and clinicians are interested in pedophilic sexual interests because of their implicit or explicit theories that many sexual offenses against children are motivated by such interests. Phallometric testing for pedophilic sexual interests—which involves the measurement of changes in penile tumescence during presentations of sexual stimuli depicting either children or adults—has discriminative and predictive validity.

Studies consistently find that groups of sex offenders with child victims can be distinguished from other men by their relatively greater sexual responses to children (e.g., Chaplin, Rice, & Harris, 1995; Freund & Watson, 1991; Quinsey, Steinman, Bergersen, & Holmes, 1975; Seto, Lalumière, & Kuban, 1999). A recent meta-analysis of sex offender follow-up studies concluded that relative sexual interest in children (assessed phallometrically) was the single best predictor of sexual recidivism among the variables studied (Hanson & Bussière, 1998).

Phallometrically measured sexual arousal to children is correlated with the criminal histories of adult sex offenders with child victims, including having male, multiple, younger, and extrafamilial victims (Freund & Blanchard, 1989; Freund & Watson, 1991; Seto et al., 1999). Follow-up studies also show that three of these variables—having a male victim, younger victims, and extrafamilial victims—are also associated with the likelihood of sexual reoffending. Number of prior sex offenses, which can be thought of as similar to number of victims,

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also predicts sexual recidivism (Hanson & Bussière, 1998). Hypothesizing that these variables indicated the degree of sexual attraction to children among offenders with child victims, Seto and Lalumière (2001) created a scale comprising these four sexual victim characteristics. The Screening Scale for Pedophilic Interests (SSPI) was positively and significantly associated with phallometrically-measured sexual arousal to children in a large sample of 1,113 male sex offenders with child victims. The four dichotomously scored SSPI items were having a male child victim, having multiple child victims, having a victim under the age of 12, and having an unrelated child victim.

The SSPI was developed to provide a simple historical measure of pedophilic sexual interests for clinical screening and research purposes when phallometric testing was unavailable. A recent study demonstrated that the SSPI was also significantly and positively correlated with phallometrically-measured sexual arousal to pre-pubescent children among adolescent male sex offenders with child victims (Seto, Murphy, Page, & Ennis, 2003). The SSPI items are similar to the items of the Rapid Risk Assessment for Sexual Offense Recidivism (Hanson, 1997) and other actuarial risk assessment scales developed for use with sex offenders.

Actuarial risk scales for sex offenders are atheoretical and their items are empirically derived; that is, their items are selected for their unique contribution to the prediction of sexual recidivism. In contrast, the SSPI items were selected according to their expected relationship with pedophilic sexual interests. The SSPI was designed to assess pedophilia, and thus it should be specifically related to further sexual contact with children among sex offenders with child victims. We therefore predicted that SSPI scores would be significantly correlated with phallometric responding and sexual recidivism among offenders with child victims. This prediction was tested in two different samples of adult sex offenders with child victims, one assessed in a correctional setting and the other in a forensic psychiatric setting.

There are practical and theoretical reasons to test this prediction. First, phallometric testing is expensive and intrusive. A simple historical measure that can assess pedophilic sexual interests as well as phallometry for the purpose of predicting sexual recidivism would have great value in risk assessments where phallometric testing is impossible. A simple historical measure could also be useful because it is presumably more difficult to fake one's officially recorded criminal history than to control one's erectile responses. Second, it is difficult to use phallometry to investigate many research questions pertaining to pedophilia. For example, determining the

role of pedophilic sexual interests in offenses committed by adolescents or other potentially vulnerable groups would be aided by a measure that is not as intrusive as phallometry. Data on pedophilic sexual interests among adolescent offenders in particular would greatly inform theories about the etiology and development of pedophilia and sexual offending against children.

## STUDY 1

### Method

#### *Participants*

All of the 113 male offenders in this sample had been convicted of at least one sex offense against a child under the age of 14, and all were referred between 1989 and 1994 for assessment to the Warkworth Sexual Behaviour Clinic (WSBC), a sex offender treatment program located in a medium-secure federal penitentiary in Campbellford, Ontario, Canada. Approximately 95% of the men who were assessed at the clinic gave informed consent to the use of their information for research purposes. A statistical description of this sample's demographic characteristics and criminal history is provided in Table I. All offenders in Study 1 were part of the study samples reported by Seto and Barbaree (1999) and Barbaree, Seto, Langton, and Peacock (2001).

#### *Procedure and Measures*

Participants gave written informed consent for information about their assessment and treatment to be used for research purposes. The WSBC's files contain information from institutional documents, including police reports, court records, previous psychological reports, and case management reports; a semistructured history-taking interview with questions on family background, developmental history, education, employment, criminal history, sexual relationships, and substance use; psychological and phallometric testing conducted at the WSBC; and the pre- and posttreatment reports cowritten by a group therapist and the program director. Descriptive information about the study variables are reported in Table I. We obtained very good interrater reliabilities, with correlations ranging from .90 to .94, for the actuarial risk scales in a subset of 30 cases of the WSBC sex offender sample (Barbaree et al., 2001); we also obtained acceptable interrater reliability for the other study variables in a subset of 62 cases of the WSBC sex offender sample, with kappas exceeding .60 and Pearson correlations exceeding .70 (Barbaree, Seto, & Maric, 1995).

**Table I.** Descriptive Summary of Study Variables Across the Two Samples (SDs Are Reported in Brackets)

Variables	Study 1 (N = 113)	Study 2 (N = 145)	Comparison
<b>Demographic characteristics</b>			
Age at index offense	34 (10)	31 (14)	<.05
Age at time of assessment	43 (10)	32 (13)	<.05
Highest grade	9.1 (2.9)	9.5 (2.6)	<i>ns</i>
Socioeconomic status (Blisken score) <sup>a</sup>	35.5 (9.0)	33.7 (10.5)	<i>ns</i>
Never married (%)	10	55	<.05
Separated from either parent under age 16 (%)	57	50	<i>ns</i>
<b>Offense history<sup>b</sup></b>			
Arrested as juvenile/arrested under age 19 (%)	36	32	<i>ns</i>
Number of prior nonviolent offenses/Cormier Lang	4.4 (7.4)	12.4 (28.2)	<i>ns</i>
Number of prior violent offenses/Cormier Lang	0.7 (1.6)	2.7 (6.9)	<i>ns</i>
Number of prior sexual offenses/Cormier Lang	1.3 (2.2)	5.4 (12)	<i>ns</i>
Total number of prior sexual offense victims	—	0.96 (1.8)	—
Number of index offense victims	2.4 (2.8)	2.2 (2.9)	<i>ns</i>
Worst injury to index offense victim <sup>c</sup>	1.2 (0.5)	2.0 (1.8)	<.05
<b>Risk to reoffend</b>			
Psychopathy Checklist-Revised score	13.2 (5.6)	18.8 (8.3)	<.05
Rapid Risk Assessment for Sexual Offense Recidivism Static-99	1.61 (1.54)	2.00 (1.71)	<i>ns</i>
Violence Risk Appraisal Guide score	2.41 (2.06)	3.08 (2.33)	<i>ns</i>
Sex Offender Risk Appraisal Guide score	-2.36 (7.5)	5.36 (11.0)	<.05
Sex Offender Risk Appraisal Guide score	1.30 (11.0)	6.30 (12.5)	<.05
<b>Main study variables</b>			
Screening Scale for Pedophilic Interests	2.78 (1.41)	2.25 (1.17)	<.05
Pedophilic Differential Index <sup>d</sup>	-.79 (4.1)	.64 (1.27)	<i>ns</i>
Violent recidivism (%)	18	33	<.05
Sexual recidivism (%)	8	19	<.05

<sup>a</sup>Blisken scores can range from 17.81 to 101.74. Blisken scores were available for 76 participants in Study 1. Scores were not coded for participants who were unemployed, in school, or retired at the time of their index offense.

<sup>b</sup>Some of the criminal history variables were coded differently for the two studies. In Study 1, the percentage of participants who were charged as young offenders was reported, while for Study 2, the percentage of individuals who were arrested under the age of 19 was reported. The number of prior nonviolent, violent, or sexual offenses were reported for participants in Study 1, while the Cormier-Lang score (a composite measure of criminal history which takes into account the seriousness of prior offenses) was reported for participants in Study 2.

<sup>c</sup>On a Likert-type Scale from 1 to 6.

<sup>d</sup>Calculated for 66 offenders in Study 1.

*Screening Scale for Pedophilic Interests (SSPI).* The items for the SSPI were scored from file information about the participants' sexual offense histories. Each item was dichotomously coded as absent or present: (1) any male child victims; (2) more than one child victim; (3) any prepubescent victim (a child under the age of 12); and (4) any extrafamilial victims (a child who was not the offender's son or daughter, stepson or stepdaughter, or a member of his extended family up to and including first cousins). Information from police notes or correctional reports were preferred over self-reported details, unless the individual reported sexual offenses that were not officially recorded. Having any male victims was scored as 0 (*absent*) or 2 (*present*), while the other items were scored as 0 (*absent*) or 1 (*present*). Thus, possible total SSPI scores ranged from 0 to 5.

*Phallometric Data.* Penile erection was measured using a mercury-in-silastic Parks Electronics strain gauge, a silastic loop filled with mercury that changes in conductance according to changes in penile circumference. Changes in conductance were monitored using a Parks Model 270 plethysmograph and recorded as millimeter changes in circumference on a microcomputer containing an analog-to-digital converter board. After arriving at the laboratory, participants were instructed on how to apply the strain gauge and were informed about the phallometric testing procedure. Participants sat on a reclining chair with the strain gauge on the midshaft of their penis and a towel placed over their lap. A closed-circuit video camera was used throughout the test session so that the evaluator could observe participants from the chest upwards and confirm that participants were looking at the stimuli.

Baseline responding was established at the beginning of the test session. Intervals between presentations varied according to how long it took an offender to return to baseline, and typically lasted no more than a few minutes. The peak response during a stimulus presentation was recorded as the increase over baseline in mm of penile circumference. In accordance with standard practice at the WSBC, results from participants who did not respond at least 4 mm to at least one slide depicting a male or female were not retained. Participants who did not meet this minimal response criterion were assessed again on a different day. Laboratory data were not recorded if participants did not meet the response criterion a second time. Unfortunately, the number of participants excluded for this reason was not recorded.

The sexual stimuli consisted of slides depicting prepubescent, pubescent, and adult male or female targets, as well as neutral landscape scenes. There were three exemplars of each stimulus category, for a total of 21 slides. Three warm-up slides were presented at the beginning of the test session; results of these warm-up trials were not recorded. Each slide was presented for 60 s, and responses were recorded for an additional 30 s after stimulus offset. Participants' responses to the slides were recorded in terms of mm change in penile circumference. These responses were used to calculate a Pedophilic Differential Index, defined as the single largest response to slides depicting children minus the single largest response to slides depicting adults. Positive scores indicated a relative sexual preference for children, while negative scores indicated a relative sexual preference for adults.

*Recidivism.* We obtained recidivism information as of April 15, 2000 from a national database of criminal charges and convictions maintained by the Canadian Police Information Centre (CPIC), a service of the Royal Canadian Mounted Police (RCMP). Information on recidivism was coded independently from information coded from the WSBC files by research assistants, to avoid contamination of predictor and outcome data. The research assistants were unaware of the predictions of the present study. As in other studies on sex offender recidivism that we have reported, we defined violent recidivism as a new charge for a nonsexually violent or sexual offense involving physical contact with a victim, and sexual recidivism as a new charge for a sexual offense involving physical contact with a victim (Barbaree et al., 2001; Seto & Barbaree, 1999). Thus, sexual recidivism was a subset of violent recidivism in this coding scheme.

We did not focus only on sexual recidivism in this study because some violent reoffenses that were in fact sexually motivated or sexual in nature may not have been coded as sexual recidivism because the word "sexual"

did not appear on the police record, presumably due to plea bargaining or lack of sufficient evidence for a sexual offense conviction. For example, some sexual offenses are recorded as "assaults" or "robberies" in the criminal record based on the circumstances of the crime, and cannot otherwise be distinguished from assaults or robberies that are truly nonsexual in nature. This definition of violent recidivism is overinclusive but it allows us to capture all sexual reoffending, and there is good reason to believe that it is often a less "noisy" measure of sexually violent reoffending than focusing only on offenses recorded as sexually motivated on police records (Harris et al., 2003). Similarly, our definition of sexual recidivism does not distinguish between new sex offenses against children and new sex offenses against adults, because new offenses listed in automated criminal records often do not indicate the age of victims.

*Other Study Variables.* The other study variables are listed in Table I. There were few missing data except for the Blishen Index and the Phallometric Index. Most of the variables are self-explanatory. The Blishen Index is calculated from the most recent occupation and takes into account the median education and income for major occupational categories drawn from the Canadian census. Examples of occupations with Blishen scores in the low to mid-30s include construction tradesperson or truck driver (Blishen, Carroll, & Moore, 1987). Criminal history was recorded as the number of prior offenses. Prior offenses were classified as nonviolent, nonsexually violent, or sexual according to the apparent nature of the crime. Nonviolent offenses were primarily comprised of offenses against property (e.g., theft, fraud, burglary), violent offenses were comprised of offenses against persons (e.g., assault, armed robbery), and sexual offenses were comprised of offenses against persons that clearly involved sexual intent (e.g., sexual assault, sexual interference).

The Psychopathy Checklist-Revised (PCL-R) is a well-established measure of psychopathy (Hare, 2003). It is based on a semistructured personal history interview and a review of file information. Participants were assigned ratings of 0 (*absent*), 1 (*some indication*), or 2 (*present*) on each of the 20 PCL-R items, which tap prototypically psychopathic characteristics such as impulsivity, irresponsibility, and callousness. Scale scores are obtained by summing the items, for a total possible score of 40. The PCL-R allows up to five missing items and scores were prorated accordingly. The PCL-R scores were obtained from psychological test reports in the inmate files. The PCL-R was predominantly scored by master's-level clinicians as part of the intake assessment at the WSBC. Reliability data were not available for the PCL-R scores used in this study. However, we previously

reported evidence of good interrater reliability for PCL-R scores in this database, based on the correlation between WSBC scores and scores by a different assessment team at a penitentiary placement unit (Barbaree et al., 2001).

The Rapid Risk Assessment of Sexual Recidivism (RRASOR), Static-99, Violence Risk Appraisal Guide (VRAG), and Sex Offender Risk Appraisal Guide (SORAG) are actuarial risk assessment scales that have all been shown to predict recidivism among adult sex offenders significantly better than chance. These actuarial scales were scored from file information for a previous study of sex offender recidivism (Barbaree et al., 2001). The RRASOR has four items: number of prior charges or convictions for sexual offenses; age upon release from prison or anticipated opportunity to reoffend in the community; any male victims; and any unrelated victims (Hanson, 1997). Total scores can range from 0 to 6. The Static-99 has 10 items, 4 of which are the RRASOR items (Hanson & Thornton, 1999). The additional items are prior sentencing dates, any convictions for noncontact sexual offenses, index offense of nonsexually violent nature, prior nonsexually violent offense, any stranger victims, and cohabitation status. Total scores can range from 0 to 12. The VRAG contains 12 items: living with both biological parents until age 16; elementary school maladjustment; history of alcohol problems; ever being married; nonviolent offense history; failure on prior conditional release; age at index offense; index victim injury; sex of index victim; meeting DSM-III criteria for any personality disorder (American Psychiatric Association, 1980); meeting DSM-III criteria for schizophrenia; and PCL-R score (Harris, Rice, & Quinsey, 1993). Total VRAG scores can range from -26 to +38. The SORAG is a modification of the VRAG, with 10 common items. The SORAG contains 14 items: living with both biological parents until age 16; elementary school maladjustment; history of alcohol problems; ever being married; nonviolent offense history; violent offense history; sexual offense history; sex and age of index victim; failure on prior conditional release; age at index offense; meeting DSM-III criteria for any personality disorder; meeting DSM-III criteria for schizophrenia; phallometrically-measured anomalous sexual interests; and PCL-R score (Quinsey, Harris, Rice, & Cormier, 1998). Total SORAG scores can range from -27 to +51.

## Results

### *Screening Scale for Pedophilic Interests*

The descriptive statistics for the total score on this scale are presented in Table I. Of the 113 offenders in this

sample, 30% had a male victim, 70% had more than one victim, 83% had a victim under the age of 12, and 70% had an extrafamilial victim.

### *Phallometry*

Because of data exclusion and problems in retrieving laboratory records, phallometric results were available for only 66 of the 113 offenders in this sample. Of the 20 study variables listed in Table I, there were only two statistically significant differences between sex offenders with and without phallometric data: offenders without phallometric data had fewer prior violent offenses,  $t(109) = -2.15$ ,  $p < .05$ , and had lower SORAG scores,  $t(111) = -1.99$ ,  $p < .05$ . Despite the smaller sample size for this particular analysis, the SSPI was significantly and positively correlated with the Pedophilic Differential Index,  $r(64) = .28$ ,  $p < .05$ . Almost half of the 66 offenders (48%) with phallometric data showed a pedophilic sexual preference by responding more to stimuli depicting children than to stimuli depicting adults.

### *Recidivism*

All of the participants had been released from prison at the time of this analysis and therefore had opportunity to reoffend. The average time since release was 5.0 years ( $SD = 1.9$ ; range, 189 days to 9.7 years). Of the 113 offenders, 20 (18%) committed a new violent offense and 9 (8%) committed a new sexual offense. The point-biserial correlation between the SSPI and violent recidivism was  $r(111) = .22$ ,  $p < .05$ , which was equivalent to a receiver operating characteristic area under the curve (AUC) of .67 ( $SE = .06$ ),  $p < .05$ .<sup>5</sup>

The AUC value of .67 obtained for the SSPI can be compared to the AUCs obtained by the actuarial risk scales for prediction of violent recidivism in this sample: RRASOR (.68,  $SE = .07$ ,  $p < .05$ ), Static-99 (.72,  $SE = .06$ ,  $p < .01$ ), VRAG (.72,  $SE = .06$ ,  $p < .01$ ), and SORAG (.78,  $SE = .06$ ,  $p < .01$ ). The correlation between the SSPI and sexual recidivism was positive but not significant,  $r(111) = .12$  ( $AUC = .62$ ,  $SE = .09$ ).

<sup>5</sup>An AUC value of .5 indicates prediction at the level of chance, while an AUC value of 1.0 indicates perfect prediction. The AUC can be interpreted as the probability that a randomly selected recidivist has a higher score on a measure than a randomly selected nonrecidivist (see Mossman, 1994). The AUC is a preferred index of predictive accuracy because, unlike a correlation coefficient or percentage correctly classified, it has the attractive feature of being insensitive to the base rate of recidivism or the selection ratio for identifying those who are likely to reoffend. We reported correlation coefficients here because of their familiarity to most readers.

**Table II.** Correlation of Study Variables With the Screening Scale for Pedophilic Interests

Variable	Study 1 ( <i>N</i> = 113)	Study 2 ( <i>N</i> = 145)
	<i>r</i>	<i>r</i>
Demographic characteristics		
Age at index offense	-.08	.00
Age at time of assessment	-.02	-.08
Highest grade	.10	.00
Socioeconomic status (Blisshen score)	.10	.13
Never married (%)	.07	.17*
Separated from either parent under age 16 (%)	-.02	.16*
Offense history <sup>a</sup>		
Arrested as juvenile/arrested under age 19 (%)	.03	.13
Number of prior nonviolent offenses/Cormier Lang	.06	.14
Number of prior violent offenses/Cormier Lang	-.02	-.07
Number of prior sexual offenses/Cormier Lang	.30*	.33**
Total number of prior sexual offense victims	—	.33**
Number of index offense victims	.31*	.43**
Worst injury to an index offense victim	-.05	-.10
Risk to reoffend		
Psychopathy Checklist-Revised score	.00	.05
Rapid Risk Assessment for Sexual Offense Recidivism Static-99	.55**	.61**
Violence Risk Appraisal Guide score	.44**	.54**
Sex Offender Risk Appraisal Guide score	.19*	.16*
Main study variables		
Pedophilic Differential Index <sup>b</sup>	.28*	.27*
Violent recidivism	.22*	.19*
Sexual recidivism	.12	.29**

<sup>a</sup>Some of the criminal history variables were coded differently for the two studies. In Study 1, the percentage of participants who were charged as young offenders was reported, while for Study 2, the percentage of individuals who were arrested under the age of 19 was reported. The number of prior nonviolent, violent, or sexual offenses were reported for participants in Study 1, while the Cormier-Lang score (a composite measure of criminal history which takes into account the seriousness of prior offenses) was reported for participants in Study 2.

<sup>b</sup>Calculated for 66 offenders in Study 1.

\* $p < .05$ ; \*\* $p < .001$ .

This AUC can be compared to the AUCs obtained by the actuarial risk scales for prediction of sexual recidivism in this sample: RRASOR (.83,  $SE = .05$ ,  $p < .01$ ), Static-99 (.81,  $SE = .05$ ,  $p < .01$ ), VRAG (.59,  $SE = .10$ , *ns*) and SORAG (.74,  $SE = .09$ ,  $p < .05$ ).

Interestingly, the SSPI correlated .20 with violent recidivism among first-time sex offenders (44% of the sample) and .18 among offenders with a prior sexual offense history, suggesting that the SSPI does not require an extensive prior history of sexual offending to detect pedophilic interests. We could not examine sexual recidivism specifically because none of the first-time offenders met the criteria for sexual recidivism during the follow-up period. We focused on violent recidivism in the following analyses because of the low base rate for sexual recidivism. Almost half of the violent reoffenses were known to be sexual in nature and, as discussed earlier, some of the remaining offenses were likely to have been sexually motivated but were not

clearly identifiable as such from the automated police databases.

#### Other Study Variables

Pearson correlations between the SSPI and study variables are shown in Table II. Not surprisingly, given the high degree of similarity in two of their items, the SSPI was highly correlated with scores on the RRASOR. The SSPI was also moderately correlated with scores on the Static-99, Violence Risk Appraisal Guide, and the Sex Offender Risk Appraisal Guide, but was not significantly associated with scores on the PCL-R or with nonsexual offense history variables.

If we accept that the PCL-R, actuarial risk scales, and nonsexual offense history variables are good indicators of general antisociality, the pattern of correlations we obtained suggests that the SSPI is not just another measure of antisociality. At the same time, the SSPI was only

moderately correlated with phallometrically-measured sexual interest in children and number of prior sexual offenses, which suggests that the SSPI, phallometry, and number of prior sexual offenses are not redundant indicators of pedophilic sexual interests.

To see if the SSPI could add to the prediction of violent recidivism provided by a well-established measure of general antisociality, the PCL-R, we conducted a binary logistic regression analysis. We entered PCL-R score and then introduced the SSPI score in a forward conditional (stepwise) manner. PCL-R scores came close to being significantly related to violent recidivism,  $\beta = .089$  ( $SE = .046$ ), Wald statistic = 3.67,  $p = .055$ , and SSPI scores made a significant addition after the contribution of PCL-R scores was taken into account,  $\beta = .417$  ( $SE = .198$ ), Wald statistic = 4.42,  $p < .05$ . We did not introduce both SSPI and phallometric scores as competing measures of pedophilic sexual interests because of the small sample size that would result from the missing phallometric data.

## STUDY 2

### Method

#### *Participants*

There was evidence that all of the 145 male participants in the second study had committed a criminal offense involving sexual contact with a child who was under the age of 14 and at least 5 years younger than the participant. Most (92%) had been referred to the phallometric laboratory of a maximum security forensic psychiatric facility in Penetanguishene, Ontario, Canada for an assessment after having been charged with, or convicted of, having sexual contact with a child under 14 years of age. A small proportion (8%) were charged with committing a sexual assault against an adult woman, but there was also evidence in their records that they had committed a sexual offense against a child. All were referred between 1974 and 1994 for an assessment of their sexual interests in children. Descriptive characteristics for this study sample are reported in Table I.

The majority of participants (67%) were inpatients at the time of the assessment and had been admitted only for an evaluation; these participants subsequently served custodial sentences in provincial or federal correctional institutions. The remainder ( $n = 49$ ) had been referred from community sources, primarily provincial probation officers or federal parole officers, and were already at risk to reoffend at the time of the assessment. Most of the participants (90%) were part of another study on actuarial risk assessment instruments for sex offenders (Harris et al.,

2003). In that study, interrater reliability was assessed by randomly selecting 10 participants for independent coding of the study variables. Pearson correlation coefficients indicated satisfactory interrater reliability.

#### *Procedure and Measures*

*Screening Scale for Pedophilic Interests (SSPI).* As in Study 1, the items for the SSPI were scored from file information about the participants' sexual offense histories. Any male victims was scored as 0 (*absent*) or 2 (*present*), while the other items were scored as 0 (*absent*) or 1 (*present*). Possible total scores ranged from 0 to 5.

*Phallometry.* The participants received a test using visual stimuli that included pictures of nude and clothed individuals of both sexes and varying ages (Harris, Rice, Quinsey, & Chaplin, 1996; Harris, Rice, Quinsey, Chaplin, & Earls, 1992). Participants also received a test using auditory stimuli that depicted passive, coercive, and violent sexual interactions between a man and a male or female child, and consenting heterosexual interactions between adults (Quinsey & Chaplin, 1988). Penile responses were recorded with a plethysmograph and a mercury-in-silastic strain gauge around the midshaft of the offender's penis. Baseline was measured during the first 2 s of each trial and recording continued for 30 s after stimulus offset.

Unlike Study 1, responses were standardized within individuals. A Pedophilic Differential Index was then calculated by subtracting the largest average response to an adult stimulus category from the largest average response to a child stimulus category. A positive score reflected a relative preference for children or sexual activities involving children, and the magnitude of the Index reflected the difference in standard deviation units. Consistent with procedures established in earlier research (Harris et al., 1992), and consistent with standard practice at this phallometric laboratory, no participants were excluded because of low levels of erectile responding.

*Recidivism.* The primary source of the independently coded outcome data was a record of charges and convictions kept by the Fingerprint Service of the RCMP, equivalent to the CPIC source used in Study 1. As in Study 1, participants were classified as violent recidivists if they incurred a new criminal charge for an offense against persons (e.g., sexual assault, assault, armed robbery) after being released from the study institution or after the assessment was completed, in the case of participants who were already living in the community. The participant was further classified as a sexual recidivist if a violent offense could be ascertained from the criminal record to have been sexually motivated (e.g., sexual assault, sexual interference). Thus, as in Study 1, all sexual offenses

involving physical contact with a victim were also coded as violent offenses.

*Other Study Variables.* The coding of all other variables was based entirely on file information and was conducted independently from the coding of recidivism outcomes. Unlike Study 1, criminal history scores for nonviolent, violent, and sexual criminal conduct were based on the Cormier–Lang criminal history scoring system (Quinsey et al., 1998), yielding total scores for all arrests for nonviolent, violent (which included all sexual offenses involving physical contact with a victim in this coding scheme), and sexual offenses that occurred prior to the index offense.

## Results

### *Screening Scale for Pedophilic Interests*

The descriptive statistics for the total score on this scale are presented in Table I. Of the 145 offenders in this sample, 37% had a male victim, 58% had more than one victim, 75% had a victim under the age of 12, and 55% had an extrafamilial victim. Table II shows the Pearson correlations between the SSPI and study variables.

### *Phallometry*

There was a positive correlation between the SSPI and Pedophilic Differential Index,  $r(143) = .27, p < .01$ . More than two-thirds of these men (68%) showed a pedophilic sexual preference by responding more to stimuli depicting children than to stimuli depicting adults.

### *Recidivism*

Ninety percent ( $n = 130$ ) of the men in this sample were in the community at the time recidivism information was obtained. The average time at risk was 64 months ( $SD = 60$ , range = 0–261 months). Of the offenders at risk, 43 (33%) committed a new violent offense and 25 (19%) committed a new violent offense that could be clearly identified as sexually motivated. As in Study 1, the SSPI was significantly associated with violent recidivism,  $r(128) = .19, p < .01$ , equivalent to an  $AUC = .62$  ( $SE = .06, p < .05$ ). This can be compared to the AUCs obtained by the actuarial risk scales for prediction of violent recidivism in this sample: RRASOR (.64,  $SE = .05, p < .05$ ), Static-99 (.69,  $SE = .05, p < .05$ ), VRAG (.75,  $SE = .04, p < .01$ ), and SORAG (.78,  $SE = .04, p < .01$ ).

The correlation of the SSPI with sexual recidivism was higher,  $r(128) = .29, p < .001$ . This relationship was

much larger than the concomitant correlation found in Study 1, and was equivalent to an  $AUC$  of .69 ( $SE = .06$ ). This ROC value can be compared to the ROC areas obtained by the actuarial risk scales for prediction of sexual recidivism in this sample: RRASOR (.69,  $SE = .06, p < .05$ ), Static-99 (.72,  $SE = .06, p < .05$ ), VRAG (.74,  $SE = .06, p < .05$ ), and SORAG (.74,  $SE = .06, p < .05$ ). Score on the SSPI still significantly predicted sexual recidivism among the 34% of the sample who had no prior arrests for sexual offenses,  $r(75) = .25, p < .05$ .

### *Other Study Variables*

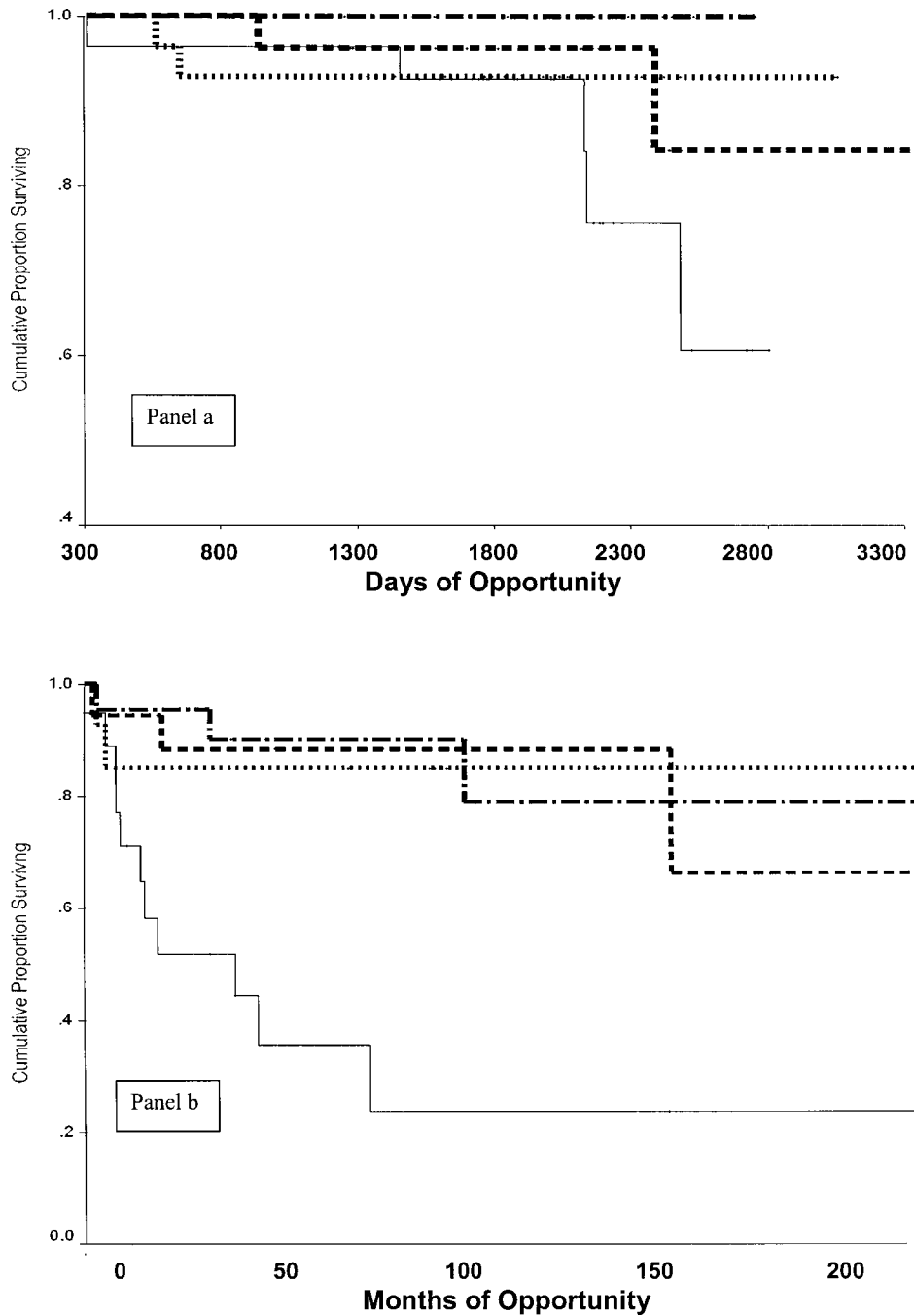
The SSPI might add to the prediction provided by a measure of general antisociality on its own, as demonstrated in Study 1, but it might not add to the prediction of recidivism when it competes for unique outcome variance with a phallometric measure of pedophilic sexual interests. We were able to explore this possibility in Study 2 because phallometric data were available for all at-risk participants. We used a binary logistic regression analysis in which the PCL-R was entered first to predict sexual recidivism. We then introduced both the SSPI and Pedophilic Differential Index in a forward conditional manner, in order to examine whether either or both variables could significantly contribute to the prediction of sexual recidivism after PCL-R scores had already been included. As expected, PCL-R scores were significantly related to subsequent sexual offending,  $\beta = .071$  ( $SE = .033$ ), Wald statistic = 4.60,  $p < .05$ . The SSPI was selected over the Pedophilic Differential Index as significantly adding to the prediction provided by the PCL-R alone,  $\beta = .542$  ( $SE = .266$ ), Wald statistic = 4.33,  $p < .05$ . The Pedophilic Differential Index did not add significantly to the prediction of sexual recidivism once the PCL-R and SSPI scores were entered.

Finally, previous research has found a multiplicative association between phallometrically-measured anomalous sexual interests and PCL-R score in predicting recidivism among sex offenders (Harris et al., 2003; Rice & Harris, 1997). We were interested in determining if the same interaction could be observed when the SSPI was used as the measure of anomalous sexual interests. In these analyses, we used median splits on the PCL-R and SSPI to create four groups (PCL-R = 20 and SSPI = 2). The rates of sexual recidivism for the four groups that were formed were as follows: 21% (low PCL-R and low SSPI), 16% (high PCL-R and low SSPI), 18% (low PCL-R and high SSPI), and 60% (high PCL-R and high SSPI). The interaction between the PCL-R and the SSPI yielded a statistically significant effect,  $\beta = 2.00$  ( $SE = .542$ ),



Wald statistic = 13.60,  $p < .001$ , in predicting sexual recidivism. The psychopathy-sexual interests interaction also yielded a statistically significant effect in a Cox proportional hazards survival analysis predicting time

until recidivism,  $\beta = 1.70$  ( $SE = .458$ ), Wald statistic = 13.78,  $p < .001$ . Figure 1, Panel (b), shows the survival functions for the four groups defined by median splits on the PCL-R and SSPI; panel (a) depicts the survival



**Fig. 1.** Cox Proportional Hazards Survival Functions from Studies 1 and 2 [panels (a) and (b), respectively]. Median splits on PCL-R and SSPI. Solid line indicates high PCL-R and high SSPI group for Study 1 (PCL-R > 12, SSPI > 2) and Study 2 (PCL-R > 20 and SSPI > 2).

functions for four groups defined by median splits on the PCL-R and SSPI for Study 1 (PCL-R = 12 and SSPI = 2). This analysis suggests that the use of the SSPI as a measure of anomalous sexual interests yielded even more clear-cut results than previously reported using phallometric testing (Harris et al., 2003; Rice & Harris, 1997).

## DISCUSSION

The present results replicated and extended earlier studies on the SSPI. The SSPI was significantly, moderately, and positively correlated with a phallometric index of sexual arousal to prepubescent children in both samples, replicating the original finding for adult sex offenders reported by Seto and Lalumière (2001). Thus, this study provided further evidence of the SSPI's concurrent validity as a measure of pedophilic sexual interests among adult sex offenders with child victims. Extending previous work, the SSPI showed evidence of predictive validity because it was significantly and positively correlated with violent recidivism in both samples. The SSPI was positively correlated with sexual recidivism in both samples, although significantly so only for the second, larger sample. This finding suggests the SSPI is related to recidivism in a theoretically sensible manner, especially if we accept that a proportion of the violent reoffenses in the first sample were in fact sexual offenses that were not clearly identified as such in police records. Together, the results of the present studies provide evidence for both the predictive and construct validity of the SSPI.

Adding further support to the hypothesis that the SSPI is a specific measure of pedophilic sexual interests, as opposed to being partly a measure of general antisociality, the SSPI had incremental validity in the prediction of sexual recidivism provided by the PCL-R. Finally, the present study showed that the SSPI yielded results similar to those previously reported for the interaction of PCL-R scores and phallometrically-measured sexual arousal. Sex offenders scoring low on the PCL-R or low on the SSPI had similar and low rates of sexual recidivism, while sex offenders scoring high on both measures exhibited a much higher rate of sexual recidivism. Indeed, sex offenders who are more likely to be psychopathic pedophiles, as defined by the PCL-R and the SSPI in Study 2, seem to come as close to the concept of the "dangerous offender" or "sexual predator" represented in Canadian and American laws (see Doren, 2002; Heilbrun, Ogloff, & Picarello, 1999), respectively, as is likely to be achieved empirically: Given 20 years of opportunity, almost all of the sex offenders in Study 2 who scored high on both measures sexually reoffended.

The relationships we obtained in these two studies between the SSPI, phallometry, and recidivism were not large, but they are typical of the sex offender follow-up literature (see Hanson & Bussière, 1998). Moreover, there were features of the two present studies that may have constrained the magnitude of the relationships that could be discovered. First, the two samples were different on a number of relevant variables, including SSPI score and the percentage of offenders who showed pedophilic preferences in the phallometric testing. Moreover, the phallometric procedure in Study 1 was different from the phallometric procedure in Study 2, because offenders in Study 1 who minimally responded in the laboratory were excluded and the data were not recorded in such a way as to allow standardization within individuals (see Harris et al., 1992; Harris & Lalumière, 1998). Nonetheless, the relationship between the SSPI and phallometrically-measured pedophilic interests was quite similar across the two studies. Second, the outcome variables we used were "noisy" in the sense that some sexual offenses were not clearly identifiable as such from the criminal record and sexual offenses could not be clearly distinguished according to the age of the victim. In addition, some sexual offenses are not detected and, therefore, do not appear on police records of new charges or convictions. If pedophilic sexual interests are linked to future sexual contacts with children as theorized, we would expect to find an even stronger relationship between the SSPI and a specific, complete measure of new sexual offenses involving children. Third, all of the participants comprised an extreme group in that they were all identified sex offenders with child victims and many would be expected to have pedophilic preferences (note the percentages of the two samples that responded equally or more to pictures of children during the phallometric assessment). Thus, the present analyses suffered from a restriction of range; we would expect larger correlations between the SSPI and phallometrically-measured sexual interests and between the SSPI and sexual recidivism had we studied samples mixing sex offenders with child victims and other men.

Future research on the SSPI is likely to focus on practical applications: Can the SSPI predict recidivism among adolescent sex offenders, for whom phallometric assessments are more difficult to conduct than adult sex offenders? Can the SSPI serve as a proxy for phallometric testing in such actuarial risk scales as the SORAG, just as a brief scale based on childhood and adolescence history variables can replace the PCL-R (Quinsey et al., 1998)? Can the SSPI and phallometry combine to provide even better diagnostic accuracy for pedophilia than obtained by either alone, especially in forensic samples for which

there are considerable incentives to fake nonpedophilic sexual interests?

Finally, the present results suggest that a simple historical measure consisting of four items pertaining to sexual victim characteristics predicted recidivism as well as did phallometric testing, and that these historical items can perform as well as phallometric testing in follow-up survival analyses spanning two subsequent decades. One plausible explanation is that, as we suggested earlier, sexual offense history is harder to conceal than penile responding in the phallometric laboratory. Offenders can voluntarily control their penile responses to some extent, but it is much harder to obscure their past criminal behavior. Another explanation is that the SSPI items can represent a large sampling of behavior relative to phallometric testing. In some cases, sexual offenses may have occurred over periods of weeks, months, or even years, while phallometric testing represents a sampling of behavior during a single laboratory session. Finally, the SSPI items may provide a purer assay of pedophilic sexual interests than erectile responding. Although showing sexual arousal in the laboratory to stimuli depicting children has costs, these costs do not compare to the risk of arrest and other negative social consequences from having sexual contact with children. Although not all sex offenders with child victims are motivated by pedophilic sexual interests, those who do and act on them may have stronger pedophilic interests than those who have pedophilic interests but do not act.

Our results have implications for the question of whether anomalous sexual interests, measured either phallometrically or historically, are a dynamic or static predictor of recidivism among sex offenders (dynamic predictors are risk factors that can change over time, while static predictors are those that cannot change over time). In our view, anomalous sexual interests cannot be assumed to be a dynamic risk factor until there is evidence that change scores, derived from assessments conducted at least two different times, add to the prediction of recidivism after initial scores are considered. Of course, the SSPI is unlikely ever to be considered as a dynamic predictor given the way in which it is scored, and its equivalence in predictive validity to a phallometric index of sexual arousal to children suggests that pedophilic sexual interests are an enduring characteristic, at least among adult sex offenders.

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## REFERENCES

- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- Barbaree, H. E., Seto, M. C., Langton, C. M., & Peacock, E. J. (2001). Evaluating the predictive accuracy of six risk assessment instruments for adult sex offenders. *Criminal Justice and Behavior*, 28, 490–521.
- Barbaree, H. E., Seto, M. C., & Maric, A. (1995). *Sex offender characteristics, response to treatment, and correctional release decisions at the Warkworth Sexual Behaviour Clinic* (Research Report 1997-73). Prepared for Ministry of the Solicitor-General and Correctional Service of Canada, Ottawa, Ontario.
- Blishen, B. R., Carroll, W. K., & Moore, C. (1987). The 1981 socioeconomic index for occupations in Canada. *Canadian Review of Sociology and Anthropology*, 24, 465–488.
- Chaplin, T. C., Rice, M. E., & Harris, G. T. (1995). Salient victim suffering and the sexual responses of child molesters. *Journal of Consulting and Clinical Psychology*, 63, 249–255.
- Doren, D. M. (2002). *Evaluating sex offenders: A manual for civil commitment and beyond*. Newbury Park, CA: Sage.
- Freund, K., & Blanchard, R. (1989). Phallometric diagnosis of pedophilia. *Journal of Consulting and Clinical Psychology*, 57, 100–105.
- Freund, K., & Watson, R. (1991). Assessment of the sensitivity and specificity of a phallometric test: An update of phallometric diagnosis of pedophilia. *Psychological Assessment*, 3, 254–260.
- Hanson, R. K. (1997). *The development of a brief actuarial risk scale for sexual offense recidivism* (User report 1997-04). Ottawa: Department of the Solicitor General of Canada.
- Hanson, R. K., & Bussière, M. T. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism studies. *Journal of Consulting and Clinical Psychology*, 66, 348–362.
- Hanson, R. K., & Thornton, D. (2000). Improving risk assessments for sex offenders: A comparison of three actuarial scales. *Law and Human Behavior*, 24, 119–136.
- Hare, R. D. (2003). *The Hare Psychopathy Checklist-Revised* (2nd ed.). Toronto, Canada: Multi-Health Systems.
- Harris, G. T., Rice, M. E., & Quinsey, V. L. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior*, 20, 315–335.
- Harris, G. T., Rice, M. E., Quinsey, V. L., & Chaplin, T. C. (1996). Viewing time as a measure of sexual interest among child molesters

- and normal heterosexual men. *Behaviour Research and Therapy*, 34, 389–394.
- Harris, G. T., Rice, M. E., Quinsey, V. L., Chaplin, T. C., & Earls, C. (1992). Maximizing the discriminant validity of phallometric assessment data. *Psychological Assessment*, 4, 502–511.
- Harris, G. T., Rice, M. E., Quinsey, V. L., Lalumière, M. L., Boer, D., & Lang, C. (2003). A multi-site comparison of actuarial risk instruments for sex offenders. *Psychological Assessment*, 15, 413–425.
- Heilbrun, K., Ogloff, J. R. P., & Picarello, K. (1999). Dangerous offender statutes in the United States and Canada: Implications for risk assessment. *International Journal of Law and Psychiatry*, 22, 393–415.
- Lalumière, M. L., & Harris, G. T. (1998). Common questions regarding the use of phallometric testing with sexual offenders. *Sexual Abuse: Journal of Research & Treatment*, 10, 227–237.
- Mossman, D. (1994). Assessing predictions of violence: Being accurate about accuracy. *Journal of Consulting and Clinical Psychology*, 62, 783–792.
- Quinsey, V. L., & Chaplin, T. C. (1988). Preventing faking in phallometric assessments of sexual preference. *Annals of the New York Academy of Sciences*, 528, 49–58.
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (1998). *Violent offenders: Appraising and managing risk*. Washington, DC: American Psychological Association.
- Quinsey, V. L., Steinman, C. M., Bergersen, S. G., & Holmes, T. F. (1975). Penile circumference, skin conductance, and ranking responses of child molesters and “normals” to sexual and nonsexual visual stimuli. *Behavior Therapy*, 6, 213–219.
- Rice, M. E., & Harris, G. T. (1997). Cross-validation and extension of the Violence Risk Appraisal Guide for child molesters and rapists. *Law and Human Behavior*, 21, 231–241.
- Seto, M. C., & Barbaree, H. E. (1999). Psychopathy, treatment behavior and sex offender recidivism. *Journal of Interpersonal Violence*, 14, 1235–1248.
- Seto, M. C., & Lalumière, M. L. (2001). A brief screening scale to identify pedophilic interests among child molesters. *Sexual Abuse: A Journal of Research and Treatment*, 13, 15–25.
- Seto, M. C., Lalumière, M. L., & Kuban, M. (1999). The sexual preferences of incest offenders. *Journal of Abnormal Psychology*, 108, 267–272.
- Seto, M. C., Murphy, W. D., Page, J., & Ennis, L. (2003). Detecting anomalous sexual interests among juvenile sex offenders. *Annals of the New York Academy of Sciences*, 989, 106–118.

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