COERCIVE AND PRECOCIOUS SEXUALITY AS A FUNDAMENTAL ASPECT OF PSYCHOPATHY

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Sexual behavior is closely associated with delinquency and crime. Although psychopaths, by definition, have many short-term sexual relationships, it has not been shown that sexuality is a core aspect of psychopathy. A Darwinian view of psychopathy led to the hypothesis that psychopaths have a unique sexuality involving early, frequent, and coercive sex. Our subjects were 512 sex offenders assessed on the Hare Psychopathy Checklist (PCL-R). Five variables reflecting early, frequent, and coercive sex loaded on the same principal component in exploratory factor analysis on a subset of the sample, whereas PCL-R items pertaining to adult sexual behavior did not. Confirmatory factor analysis of the remaining subjects yielded a measurement model containing three inter-correlated factors – the traditional two PCL-R factors, and coercive and precocious sexuality. Taxometric analyses gave evidence of a natural discontinuity underlying coercive and precocious sexuality. Coercive and precocious sexuality yielded statistically significant associations with other study variables predicted by the Darwinian hypothesis. The present findings are consistent with prior empirical findings and support the hypothesis that psychopathy has been a nonpathological, reproductively viable, alternate life history strategy.

A strong association between antisocial conduct and sexual behavior is consistently observed in research on crime and delinquency. Specifically, people who first have sex at a young age, have many sex partners, and have an uncommitted approach to sexual relationships are also more likely to engage in criminal and violent behavior. This has been observed in all age groups: bullies at school experience puberty younger and begin dating earlier (Connolly, Pepler, Craig, & Taradash, 2000); aggressive chil-

dren engage in more sex, at younger ages, and have more antisocial peers (Ary, Duncan, Duncan, & Hops, 1999); delinquency, substance abuse, and antisocial behavior are associated with the early onset of puberty and sexual activity (Capaldi, Crosby, & Stoolmiller, 1996; French & Dishion, 2003; Neemann, Hubbard, & Masten, 1995); among adolescent males, those with offspring have higher rates of substance abuse and behavior disorders (Moore & Florsheim, 2001); among young men, high mating effort (energy devoted to obtaining sexual partners) is associated with childhood indicators of antisociality and with sexual aggression (Lalumière & Quinsey, 1996); antisociality in adulthood is associated with mating effort and early reproduction (Bingham & Crockett, 1996; Quinsey, Book, & Lalumière, 2001; Rowe, Rogers, Meseck-Bushey, & St. John, 1989; Stouthamer-Loeber & Wei, 1998).

This well-established association is usually understood in social learning terms. People who have not learned to restrain their behavior in one domain (i.e., flouting societal norms pertaining to sex) also engage in such other forms of unconventional behavior as substance abuse and delinquency (e.g., McCord, 2001). It is harder for social learning to explain a relation between puberty and criminality; variation in pubertal onset in a birth cohort is largely genetic, with few environmental effects (Eaves et al., 2004).

A somewhat independent line of research clearly identifies a minority of individuals as responsible for a vastly disproportionate amount of crime and violent crime. *Life course persistent* offenders, by definition, begin aggressive and antisocial conduct at very young ages and persist at rates higher than any other offenders throughout the lifespan (Broidy et al., 2003; Farrington, 2000; Quinsey, Skilling, Lalumière, & Craig, 2004; Moffitt & Caspi, 2001; Shaw, Gillom, Ingoldsky, & Nagin, 2003). There is evidence that such life course persistent offenders comprise a discrete natural class of individuals (Ayers, 2000; Harris, Rice, & Quinsey, 1994; Haslam, 2003; Skilling, Harris, Rice, & Quinsey, 2002; Skilling, Quinsey, & Craig, 2001, Vasey, Kotov, Frick, & Loney, 2005; but see Edens, Marcus, Lilienfield, & Poythress, 2006), and that criminal behavior and antisocial traits have a strong heritable component (Blonigen, Carlson, Kreuger, & Patrick, 2003; Taylor, Iacono, & McGue, 2000). There is also evidence of unique and heritable patterns of neurotransmitter function (Cadoret et al., 2003; Soderstrom, Blennow, Sjodin, & Forsman, 2003), unstable and antisocial family histories (Caspi et al., 2002; Farrington, 2000; Harris, Rice & Lalumière, 2001; Swaim, 1991), and high mating effort, especially sexual coercion (Firestone, Bradford, Greenberg, & Serran, 2000; Porter et al., 2000; Quinsey, Rice, & Harris, 1995).

Life course persistent offenders have usually been viewed as exhibiting some form of serious disorder or deficit due to the combined effects of many genes together with a disrupted, abusive childhood that causes neurophysiological and neuroanatomical anomalies (e.g., Caspi et al., 2002; Farrington, 2006; McCord, 2001). They consequently exhibit defects in the

ability to experience arousal, plan ahead, learn from experience, decode important emotional cues, and modulate overt responding based on secondary information (Hiatt & Newman, 2006; Patrick, 2006). Blair, Jones, Clark, and Smith (1997), however, reported that although psychopaths (the most identifiable life course persistent offenders) exhibit deficits in responding to emotional cues concerning others; negative emotions concerning the self (i.e., threats) led to normal responding. Blair (personal communication, May, 2000) also observed that if psychopathy is a disorder, it is oddly unique inasmuch as it is associated with some enhanced abilities (albeit such undesirable ones as glibness, conning and exploiting).

According to Wakefield (1992), the idea of disorder requires not only the undesirability or harmfulness of a condition, but also its being caused by the failure of a structure or function to perform as designed by natural selection. Thus, reproductive success raises questions about pathology. Our recent research about male psychopaths (e.g., Harris et al., 2001; Lalumière, Harris, & Rice, 2001) has tested a Darwinian, functional interpretation of psychopathy.

OUR PREVIOUS RESEARCH ON PSYCHOPATHY

Harris, Rice, and Cormier (1991) examined graduates of a therapeutic community. Of approximately 50 separate variables reflecting childhood history, adult adjustment, offense characteristics, assessment results and institutional progress, score on the Hare Psychopathy Checklist (PCL-R; Hare, 2003) yielded the largest association with violent recidivism. In multiple regression analyses, the four criminal history variables providing the largest independent contribution to the prediction of violent recidivism accounted for a significant and large amount of variance in violent recidivism. However, adding PCL-R score significantly improved prediction. In the prediction of violence, then, PCL-R captured more than just adult criminal history. Moreover, only non-psychopaths exhibited an age-related decline in violent recidivism (see also Hare, Forth, & Strachan, 1992; Porter, Birt, & Boer, 2001). In another study, psychopaths scored higher than nonpsychopaths on a measure of prior alcohol abuse, but alcohol added to the prediction of violent recidivism only among nonpsychopaths (Rice & Harris, 1995). Among sex offenders, those who were both psychopathic and paraphilic (in phallometric assessment) exhibited greater likelihood of sexual recidivism than all other offenders (Rice & Harris, 1997). This multiplicative interaction has since been replicated (Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Harris et al., 2003; Hildebrand, Ruiter, Vogel, 2004; Seto, Harris, Rice, & Barbaree, 2004). All these findings suggest a fundamental difference between psychopaths and nonpsychopaths.

Perhaps the best-known study in this line of research was of a therapeutic community for violent offenders thought to be especially effective for psychopaths (Harris, Rice, & Cormier, 1994; Weisman, 1995). We evalu-

ated the program comparing its participants to matched offenders who had been imprisoned (Rice, Harris, & Cormier, 1992). Over a mean ten-year follow-up, the program had little effect overall, but psychopaths and nonpsychopaths responded differently. Among nonpsychopaths, there was a significant negative association between participation and violent recidivism. Among psychopaths, however, the association was significantly positive, suggesting that treatment made psychopaths more violent. This now replicated finding (Hare, Clark, Grann, & Thornton, 2000) is a particularly remarkable effect of a psychological trait on treatment response, again suggesting a fundamental difference between psychopaths and other serious offenders. We propose that natural selection provides the ultimate mechanism for psychopathy.

PSYCHOPATHY AS A REPRODUCTIVELY VIABLE LIFE HISTORY STRATEGY

We suggest that psychopathy exists because it was selected during human evolution. The human evolutionary environment very likely consisted of stable groups, with strong adherence to rules and reciprocal altruism (Ridley, 1997; Wright, 1994). This created a niche for an alternative strategy involving cheating and exploiting others. An effective cheater needed to be selfish, callous, charming, and aggressive (Frank, 1988). If many people employed this strategy, though, cooperators would have become scarce and more vigilant. Thus, these two life history strategies were theoretically frequency dependent, with psychopathy at a stable low prevalence (see Mealey, 1995).

High mating effort—devoting energy to acquiring and keeping sexual partners—would be inherent in the cheating strategy, and cheaters would be willing and able to use deception and coercion in heterosexual encounters (Harpending & Sobus, 1987). In contemporary research, men who sexually assault females of reproductive age (rapists) commonly score higher on the PCL-R than men who assault males or females below reproductive age (child molesters; e.g., Quinsey et al., 1995). In addition, PCL-R scores are positively related to sexual arousal to stimuli depicting coercion or rape and inversely related to sexual arousal to children or males (Harris, 1998; Harris, Rice Hilton, Lalumière, & Quinsey, 2004). Belsky, Steinberg, and Draper (1991) argued that, under some circumstances, a high mating effort life history strategy is typified by insecure attachment to parents and childhood behavior problems, early puberty and precocious sexual behavior, unstable adult pair bonding, and low parental investment. Psychopathy, defined in part by sexual promiscuity and many short marital relationships, might, therefore, represent a genetically determined alternate life history strategy maintained in the population by its reproductive success.

By this selectionist account, psychopaths execute an alternative life history strategy. From childhood, they exhibit personalities quite different

from others, but the neuroanatomical and neurochemical differences evident in adulthood are not the result of perturbations. Psychopaths are impulsive, fearless, unempathic, and resist punishment under certain conditions, yet do not appear grossly or generally disadvantaged even in the laboratory (Schmauk, 1970). Laboratory tasks that show psychopathic differences must be arranged carefully—psychopathic deficits are so subtle they cannot be observed without special techniques, implying that ancestral humans would have had difficulty observing and defending against them. We suggest that, because psychopaths' unique differences are not deficits, characteristics displayed in some laboratory tasks actually afforded them an advantage (MacDonald & Iacono, 2006).

A recent meta-analysis of behavior genetic studies of psychopathy (not defined by the PCL-R; Waldman & Rhee, 2006) implied large genetic influences, a moderate influence of nonshared environment, and no influence of shared environment. This implies that psychopathy has not been a conditional strategy and, therefore, has probably been an alternative life history strategy. Prenatal insult, infantile infection, and head injury are candidate nonshared environmental influences, but such perturbations have not been detected in psychopaths by current imaging technology. It is more likely that neurological differences associated with psychopathy are the result not of damage but of a genetic program (Raine & Yang, 2006) expressed via neurotransmitter activity and neuroanatomy (Blair, 2006).

We tested the hypothesis that psychopathy is a viable life history strategy by examining pregnancy difficulties and perinatal problems known to be related to such mental disorders as schizophrenia and mental retardation. Psychopaths had significantly fewer of these problems than other offenders, even among non-schizophrenic offenders (Lalumière et al., 2001). Neurodevelopmental insults were associated with violent behavior, but not with psychopathy (Harris et al., 2001). We also examined fluctuating bilateral asymmetry, an index of the degree to which development has been perturbed by a wide variety of environmental (and some genetic) stressors. Higher asymmetry is found among adults with neurodevelopmental disorders (such as schizophrenia and mental retardation). In contrast, we found that psychopaths were more symmetrical than other offenders, and offenders with the highest PCL-R scores were indistinguishable in asymmetry from healthy nonpatient volunteers (Lalumière et al., 2001). Thus, psychopathy shows little evidence of the problems associated with serious mental disorders. While many adverse medical conditions and injuries lead to antisocial and violent behavior, our selectionist hypothesis suggests they do not cause psychopathy. As we explained in detail elsewhere (Barr & Quinsey, 2004; Harris et al., 2001; Harris, Skilling, & Rice, 2001; Lalumière, Harris, Quinsey, & Rice, 2005; Quinsey et al., 2004), it is likely that there have been different paths to serious and chronic criminality: a nonpathological one associated with psychopathy and one associated with developmental neuropathology, less extensive criminality, and competitive disadvantage.

THE DISTINCT SEXUALITY OF PSYCHOPATHS

Competitive disadvantage due to neurodevelopmental perturbations might trigger the adoption of a facultative life history strategy involving short-term, high-risk adult reproductive tactics distinct from psychopathy (Lalu-mière et al., 2005). High status and many competitive advantages among males might also trigger reproductive tactics that entail few compromises with female-preferred reproductive interests, and this uncompromising strategy might entail most aspects of high mating effort. High adult mating effort, then, though very much inherent in male psychopathy, might not be diagnostic because it is also inherent in other male mating strategies. Conversely, a generally deceptive and aggressive approach to others is fundamental to psychopathy; aggression and coercion are not just side effects of psychopathic callousness or poor empathy; and coercion, aggression, and deception emerge at a young age. Thus, we predicted that early onset, high frequency, and coercive sexuality would be a key, unique and diagnostic feature of psychopathy. The main idea was that the psychopathic life history strategy has entailed more aggressive high mating tactics at younger ages than have others.

Since the earliest clinical observations of psychopathy in the mid-20th century, sexual behavior has formed an aspect of the clinical characterization of psychopaths (Karpman, 1951). Cleckley (1964) regarded psychopathic sexuality as casual and unrestrained, but poorly integrated and not especially "driven." Interest in the sexuality of psychopaths has continued ever since (Holt, Meloy, & Strack, 1999; Firestone et al., 2000; Wiebe, 2004) with the general conclusion that psychopaths exhibit a greater interest in or tolerance for violent, coercive, and sadistic sex. The gold standard psychopathy assessment, the Hare Psychopathy Checklist (PCL-R; Hare, 2003), on the other hand, lists only two items reflecting mating effort—many short-term marital relationships and sexual promiscuity. These items are unique in that they do not appear in any of the varied factor models of psychopathy (Cooke, Michie, & Hart, 2006; Hare & Neumann, 2006). Mainstream research on psychopathy has not explored its characteristic sexual behavior, and much of the clinically inspired work has concentrated on general affective and interpersonal traits (e.g., Herve & Yuille, 2006; Patrick, 2006). Whether the focus is on interpersonal behavior, negative emotion, or deficient emotional arousal, mainstream research on psychopathy is mostly silent on sexuality; indeed, only psychodynamically oriented scholars seem to mention it (e.g., Meloy, 2001).

As mentioned earlier, the selectionist hypothesis of psychopathy as a life history strategy led us to investigate the victims of psychopathic sex offenders. Of 274 sex offenders, about half had assaulted adult women (reproductively viable persons for a male offender) and the others confined their sexual offending to children (with whom sexual activity could have had no reproductive outcome); the latter had lower PCL-R scores (Quinsey et al., 1995). In a different sample of sex offenders, PCL-R score was significantly inversely correlated with the number of prepubescent victims, and

positively correlated with the number of adult female victims and with genital-genital contact in sex offending (Harris, Rice, Hilton, Lalumière, & Quinsey, 2004). We concluded that psychopathic sex offenders were more likely than other sex offenders to target reproductively viable victims and to engage in potentially reproductive behavior. As far as we know, no other hypothesis about the nature of sex offenders or psychopathy accounts for or suggests this difference.

One of the most intriguing and knotty aspects of this hypothesis concerns the behavior of psychopaths as parents. The earliest accounts of psychopathy noted poor performance as parents (Cleckley, 1964). A heritable condition causing parents to neglect or abuse their offspring would likely disappear from the population, and by definition, could not have been adaptive. The continued existence of psychopathy, however, can be explained by ancestral male psychopaths relying on maternal investment in their offspring and a quantity-over-quality trade-off. This account depends on the hypothesized centrality of coercive and precocious sexuality to the construct of psychopathy.

THE PRESENT STUDY

The present study tested the nature of coercive and precocious sexuality conservatively, by examining the sexual and antisocial histories of over 500 male sex offenders. At first glance, sex offenders might seem an odd choice to test our hypothesis, because of the prevalence of known sexual (and other) disorders in this population; sex offenders, however, tend to have well documented sexual histories and have a wide range of scores on measures of psychopathy. We examined coercive and precocious sexuality and other mating effort variables in exploratory factor analysis, followed by confirmatory factor analysis to test the hypothesis of coercive and precocious sexuality as a fundamental aspect of psychopathy. The psychopathic sexuality factor was further tested in a convergent-discriminant analysis, which tests not only the predicted associations between the hypothesized factor and other study variables, but also certain other associations predicted not to occur. In addition, we subjected the variables pertaining to coercive and precocious sexuality and psychopathy to taxometric analyses.

If psychopathy is a frequency dependent life history strategy, then it should exhibit taxonicity or, in ecological terms, psychopaths should be a *morph* (Lalumière et al., 2005). That is, psychopaths should be a qualitatively distinct group—a natural class or type. The reasoning is that the psychopathic and nonpsychopathic strategies are mutually incompatible—the mainly cooperative nonpsychopathic strategy has been reproductively viable, as has the psychopathic strategy, but a blended strategy has not. Those ancestral humans who employed a divided strategy, sometimes defecting and deceiving their neighbors while being genuinely sincere and cooperative at other times, would have been especially unsuccessful (Bu-

gental, 2000). Studies of offenders (Harris, et al., 1994; Skilling et al., 2003; Ayers, 2001; but see Edens et al., 2006) and aggressive boys (Skilling et al., 2001; Vasey et al., 2005) have yielded taxometric evidence of a distinct class underlying lifecourse persistent antisociality, DSM antisocial personality disorder, and the most serious forms of juvenile antisocial, violent, and criminal behavior. If coercive and precocious sexuality is a fundamental aspect of psychopathy, we expected it to exhibit taxonicity.

METHOD
PARTICIPANTS

Data collection was entirely archival except for the laboratory assessment of sexual preferences. We studied 512 male sex offenders, all of whom had offended against a child (child molesters; $n = 248$), an adult female (rapists; $n = 212$), or both ($n = 52$). The sample comprised four groups. The first were all 178 sex offenders admitted to Oak Ridge and assessed in the Sexual Behaviour Laboratory from 1974 to 1994 who were not included in earlier follow-up studies. The majority had been admitted for psychiatric evaluation only and subsequently served sentences in federal or provincial correctional institutions. The second group comprised all 138 men assessed in the laboratory from 1979 to 1994 who were referred by community sources (mostly provincial probation officials or federal parole officers, $n = 98$) or clinicians at a neighboring civil psychiatric facility ($n = 40$). The third group comprised 97 federal inmates released from the Regional Treatment Centre, Kingston Penitentiary between 1977 and 1989. They were a randomly selected subsample of subjects reported by Quinsey, Khanna, and Malcolm (1998). The fourth group included 99 federal inmates from the Regional Psychiatric Centre, Abbotsford, released between 1978 and 1984. The subset of offenders ($n = 396$) in this sample who had had an opportunity to recidivate has been described previously (Harris et al., 2003).

VARIABLES

To characterize the offender samples, we coded several sociodemographic variables (Table 1) and others in order to conduct the primary statistical analyses reported here. Foremost among these was the 20-item revised version of the Hare Psychopathy Checklist (PCL-R, Hare, 2003). Hare developed the PCL-R to assess the extent to which someone "matches the prototypical psychopath" (Hare, 2003). Many PCL-R items represent central interpersonal and affective traits, while others describe an impulsive, exploitative, and antisocial lifestyle (Hare et al., 1990; Harpur, Hakstian, & Hare, 1988). We derived PCL-R scores by coding clinical file material only (as permitted by the PCL-R manual when high quality documentary information is available). Previous research has indicated that scoring

TABLE 1. Summary Statistics (*N* = 512) for Most Study Variables (Means and SDs for Continuous Variables and Percentages for Dichotomous Variables). Also Shown is the Pearson Product-Moment Correlation (*n* = 396) Between the Variable and Coercive and Precocious Sexuality (CPS) and Score on the Hare Psychopathy Checklist (PCL-R)

	Mean(SD) or %	*r*(CPS)	*r*(PCL-R)
Juvenile History			
Parental alcoholism (%)	38	.12*	.18***
Parental criminality (%)	9	.13*	.14*
Pregnancy & perinatal problems (%)[a]	8	.06, ns	.07, ns
Parental abuse and neglect[b]	1.09 (1.40)	.30***	.11*
Behavior problems before grade 3 (%)[c]	16	.19***	.26***
Aggression score prior to age 8[d]	1.53 (0.83)	.18***	.25***
Elementary school maladjustment	2.44 (1.01)	.20***	.40***
Aggression score prior to age 15[d]	2.57 (1.40)	.26***	.44***
Childhood and adolescent taxon scale[e]	2.51 (2.13)	.28***	.45***
DSM-IV conduct disorder symptom count	.98 (1.80)	.30***	.34***
Highest grade achieved	9.39 (2.83)	−.09, ns	−.13*
Separation from parents before age 16 (%)	60	.15**	.17**
Arrested under age 16 (%)	48	.23***	.33***
Age at first arrest	23.17 (12.21)	−.22***	−.42***
Cormier-Lang nonviolent offenses under age 18[f]	2.57 (6.19)	.20***	.33***
Cormier-Lang violent/nonsex offenses under 18[f]	.32 (1.59)	.22***	.15**
Adult History and Outcome			
History of neurological problems (%)[g]	25	−.15+	−.06, ns
IQ	98.1 (16.0)	−.10, ns	0.0, ns
Alcohol abuse score[h]	3.26 (2.49)	.07, ns	.22**
DSM-IV diagnosis of schizophrenia (%)	4	.05, ns	.01, ns
DSM-IV antisocial personality symptom count	4.17 (3.36)	.25***	.58***
Had criminal associates (%)	58	.15*	.64***
Prior admissions to correctional institutions	1.53 (2.43)	.12*	.45***
Cormier-Lang for adult nonviolent offenses[f]	12.3 (21.4)	.08, ns	.39***
Cormier-Lang for adult violent/nonsex offenses[f]	3.32 (7.33)	.41***	.28***
Hare PCL-R score	17.4 (7.50)	.21***	—
Violence Risk Appraisal Guide score[i]	6.90 (10.9)	.25***	.76***
Age at index offense	30.2 (10.8)	−.10, ns	−.23***
General criminal recidivism (%)	60	.16**	.29***
Violent offense recidivism (%)	48	.12*	.30***
Rap sheet sexual recidivism (%)[j]	27	.18*	.17*
Pattern of Adult Sex Offending			
Cormier-Lang score for adult sex offenses[f]	6.18 (13.0)	.34***	.21***
Total number of sex offense victims	2.65 (2.34)	.19**	.07, ns
Number of child victims	1.12 (2.0)	.08, ns	−.07, ns
Number of male victims	.49 (1.81)	.09, ns	−.02, ns
Number of unrelated victims	.85 (.75)	.15**	.26***
Phallometric pedophilic index[k]	0.56 (1.31)	−.28***	−.27***
Phallometric coercion index[l]	0.65 (1.10)	.14+	.14+

Note: [a]Any of the medical problems associated with pregnancy or childbirth (e.g., toxemia, caesarian section, anoxia, low birth weight) evaluated in our previous research (Lalumière et al., 2001). [b]The total of eight aspects of child abuse and neglect (e.g., physical abuse, sexual abuse, malnutrition). [c]Any discipline or attendance problems recorded. [d]Aggression rated on an 8-point scale from 1 = none to 8 = occasional or frequent extreme aggression. [e]The sum of dichotomous items (juvenile aggression, arrest under age 16, elementary school maladjustment, etc.) we previously reported gave evidence of an underlying natural discontinuity (Harris et al., 1994). [f]A system (adapted from Akman & Normandeau, 1967) that provides a numerical score capturing the frequency and severity of criminal behavior (Appendix G, Quinsey et al., 2006). [g]Any record of head injury, abnormal neuropsychological test results, abnormal brain scans, EEG results, or neuroimaging findings. [h]A six-point scale capturing the frequency and severity of adult alcohol abuse (Quinsey et al., 2006). [i]A validated and replicated actuarial instrument that provides a large predictive effect in assessing the risk of violent recidivism (Harris et al., 1993; Quinsey et al., 2006). [j]Those recidivistic offenses that could be ascertained to have been sexually motivated from police charge records only; i.e., not counting sexually motivated homicide, kidnapping, and most assaults. [k]A phallometric test result in which the largest mean standardized response to an adult category is subtracted from the largest mean standardized response to a child category; a score greater than zero indicates an assessed absolute preference for stimuli depicting children (Harris et al., 1992, 2003). [l]A phallometric test result in which the largest mean standardized response to any category involving violence or coercion is subtracted from the largest response to any other category. For correlations, dichotomous variables were coded 0 for "no" and 1 for "yes." ***p < .001, **p < .01, *p < .05, +p < .10.

from files yields the same factor structure as that obtained via the file-plus-interview method, and also yields inter-rater reliability and predictive validity at least as high (Harris et al., 1994; Skilling et al, 2002; G. Walters, personal communication, October, 2001).

Other variables theoretically relevant to psychopathic sexuality were: subject had sexual contact with an adult prior to age 15, age at first sexual intercourse (excluding sex offences against the subject), number of sexual partners prior to age 15 (excluding sex offences against the subject), subject forced anyone into sexual activity prior to age 15, and the Cormier-Lang score (Quinsey et al., 2006) for all criminal charges for sex offenses incurred prior to age 18. Table 1 shows variables theoretically relevant to psychopathy (i.e., those expected on theoretical grounds to correlate with psychopathy or expected to be unrelated to psychopathy). Violent and sexual recidivism was coded from records of charges and convictions of the Fingerprint Service of the Royal Canadian Mounted Police (a national register). Subjects were classified as violent recidivists if they incurred a new criminal charge for an offense against persons (e.g., homicide, attempted homicide, assault causing bodily harm, armed robbery, kidnapping) after release. If we could ascertain from the criminal record that a violent offense was sexually motivated (i.e., sexual assault or sexual interference), the subject was also recorded as a sexual recidivist. Many violent re-offenses which were sexually motivated were not coded as sexual recidivism because—due to plea bargaining or lack of evidence, or because the victim died and the charge was murder—the word "sexual" did not appear on the police record (Rice, Harris, Lang, & Cormier, 2006). Sexual recidivism was therefore a subset of violent recidivism. Also included were known violent or sexual offenses (resulting in reinstitutionalization) that occurred after release from the study institutions, even if formal charges were not laid ($n = 6$).

PROCEDURE AND ANALYTIC STRATEGY

The coding of all variables (Table 1) was done by three teams of research assistants (one at each site), using documentary material compiled before offenders' release, and independently of the coding of recidivism. Inter-rater reliability had been assessed at one site by randomly selecting 10 subjects for independent coding of the study variables. All variables reported here achieved acceptable Pearson correlation coefficients or kappa statistics (at least .8 and .7, respectively, Harris et al., 2003).

To examine the likelihood that coercive and precocious sexuality is a fundamental aspect of psychopathy, we randomly selected 150 cases from our sample of 512 for a principal components analysis of the relevant PCL-R items and the other indicators of hypothetical psychopathic sexuality. The rest were used for the subsequent confirmatory factor analysis. Next, we subjected indicators of coercive and precocious sexual behavior to several taxometric analyses, both alone and in conjunction with other mea-

TABLE 2. Summary Statistics (Percentages or Means with SDs) and Principal Component Loadings on Components 1 and 2 for Sexual Behavior Items (Loadings > .40 Shown)

Variable	Summary	Comp. 1	Comp. 2
Under age 15, had sex with an adult (%)	19	.43	—
Age at first sexual intercourse (inverse)	15.6 (3.47)	.73	—
Number of sexual partners before age 15	.22 (.67)	.62	—
Under age 15, forced someone into sex (%)	7	.49	.46
Cormier-Lang score for sex charges under age 18*	.77 (3.58)	.74	—
Many short-term marital relationships (PCL-R)	.20 (.52)	—	—
Promiscuity (PCL-R)	1.25 (.86)	—	.70

Note. *A system (adapted from Akman & Normandeau, 1967) that provides a numerical score capturing the frequency and severity of arrests and criminal charges for sex offending before the age of 18 (Appendix G, Quinsey et al., 2006).

sures associated with psychopathy, in Max-Cov Hitmax and Max-Eig Hitmax procedures. Then, in conjunction with PCL-R factor scores, we subjected coercive and precocious sexuality items to MAMBAC ("mean above minus below a cut") analyses. Finally, we examined the relationship between this hypothetical psychopathic sexuality factor and other study variables, some of which (e.g., sexual recidivism) we expected to be related to psychopathy while others (e.g., perinatal problems) we expected to be unrelated or negatively related.

RESULTS
FACTOR ANALYSIS

The 512 subjects were divided at random into two groups, the first of which (n = 150) were subjected to principal components analysis. The variables entered were: whether the subject was recorded as having had sexual contact with an adult when he was under age 15, whether the subject was recorded as having forced someone into sexual activity before the age of 15, his age at first sexual intercourse (including sex offense perpetration), the number of sexual partners (including victims) under age 15, his Cormier-Lang score for sex offense criminal charges incurred under age 18, and the two PCL-R items, many short-term marital relationships and promiscuous sexual behavior. The analysis yielded two components with Eigenvalues over 1, accounting for 45% (28% and 17%) of the total variance. The juvenile items loaded on one factor (loadings > .40; Table 2). Forced sex before age 15 also had a secondary loading on the second factor, along with one of the adult items, promiscuity. The other item (many short-term marital relationships) did not load highly on either factor.

  We then conducted a second exploratory factor analysis (on the same subsample) in which we subjected the five juvenile sexual behavior items plus the five PCL-R items most highly correlated with their respective PCL-R factor scores (1. Glibness, 2. Grandiose sense of self-worth, 5. Conning and manipulative, 6. Lack of remorse, and 16. Failure to accept responsi-

bility for PCL-R factor 1; and 3. Need for stimulation, 9. Parasitic lifestyle, 13. Lack of goals, 14. Impulsivity, and 15. Irresponsibility for PCL-R factor 2) to a principal components analysis with oblimin rotation. Three principal components with Eigenvalues over 1.1 accounted for 50% of the total variance. After rotation, the first two components duplicated the classic PCL-R factor structure and were correlated .50 (Table 3). The third factor, comprising coercive and precocious sexuality, yielded a correlation of .47 with PCL-R factor 1 and .45 with PCL-R factor 2. Based on this support, we proceeded with a confirmatory factor analysis testing our hypothesis of a fundamental aspect of psychopathy pertaining to early and aggressive sexual behavior.

For the CFA, we used the second randomly selected portion of the subjects ($n = 362$) and exactly the same variables indicating the three hypothetical underlying constructs employed in the second EFA. The measurement model is shown in Figure 1. Amos 5.0 was used to estimate parameters with 33 variables, 15 observed and 18 unobserved; 18 exogenous and 15 endogenous. The analysis converged after 8 iterations and yielded a good fit to the data: χ^2 ($df = 87$) = 197.0, $p < .01$; Goodness of fit index = .93; Adjusted goodness of fit index = .91; Normed fit index = .87; Relative fit index = .85; Incremental fit index = .93; Tucker-Lewis coefficient = .91; Cumulative fit index = .93; RMSEA = .06; Consistent Akaike information criterion = 424.4; Expected value of the cross validation index = .73 (90% CI ± .11). Final parameter estimates (based on all 512 subjects) are also shown in Figure 1, indicating that the covariance structure in these subjects yielded a relationship consistent with the EFA. Correlations between coercive and precocious sexual behavior items and Factors 1 and 2, and

TABLE 3. Principal Component Loadings for the Exploratory Factor Analysis of Three Factors Underlying Psychopathy (Loadings > .40 Shown)

|	Component		
Variable	1	2	3
PCL-R Factor 1			
Glibness, superficial charm (PCL-R item 1)	.66	—	—
Grandiose self worth (PCL-R item 2)	.68	—	—
Proneness to boredom (PCL-R item 3)	.54	.72	—
Conning, manipulative (PCL-R item 5)	.72	.44	.43
Lack of remorse or guilt (PCL-R item 6)	.75	—	—
PCL-R Factor 2			
Parasitic lifestyle (PCL-R item 9)	—	.76	—
Lack of real long-term goals (PCL-R item 13)	—	.73	—
Impulsivity (PCL-R item 14)	.40	.84	—
Irresponsibility (PCL-R item 15)	—	.74	—
Failure to accept responsibility (PCL-R item 16)	.64	—	—
Coercive and Precocious Sexuality			
Sexual contact with an adult (<age 15)	—	—	.47
Age first sexual intercourse (inverse)	—	—	.70
Sexual partners before age 15	—	—	.64
Forced someone into sex before age 15	—	—	.47
Cormier-Lang score for sex charges (<age 18)	—	—	.41
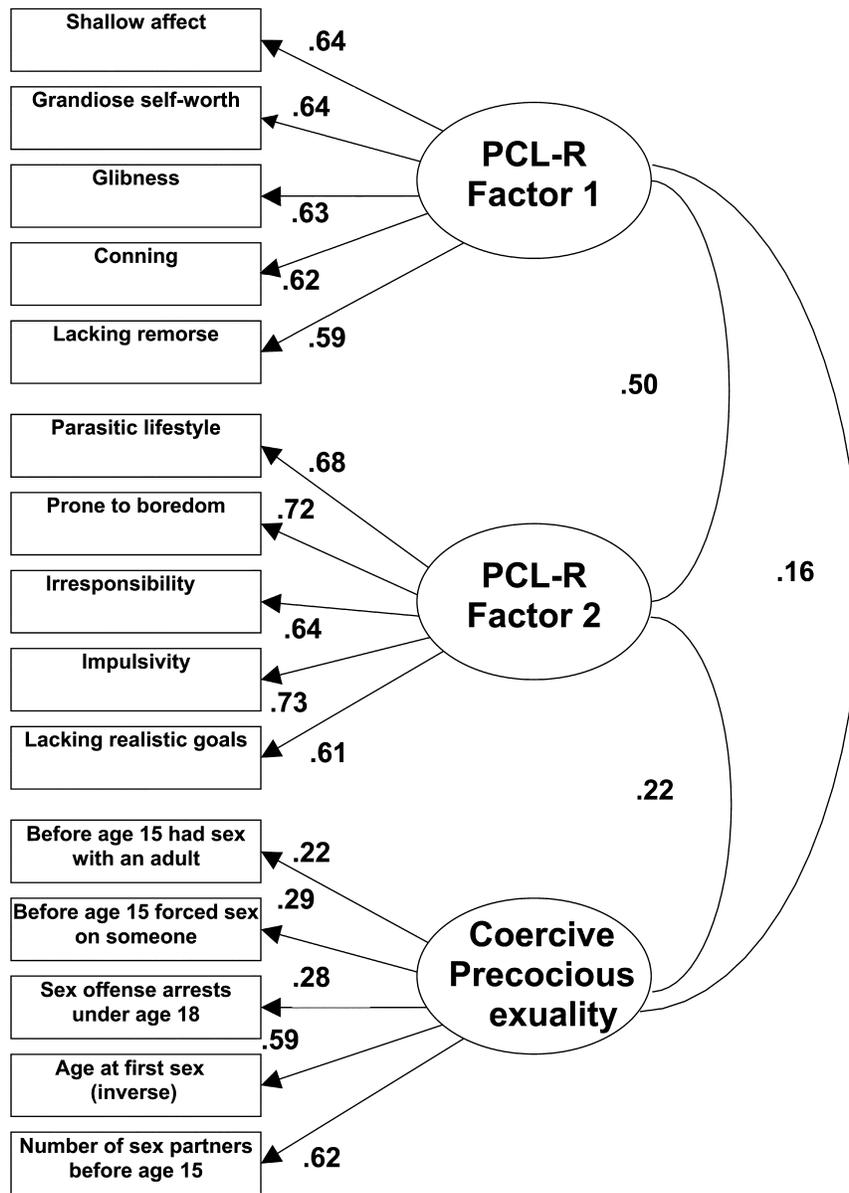
FIGURE 1. The final measurement model with parameter estimates ($N = 512$)

the internal consistency of the coercive and precocious sexuality factor were somewhat lower than in the EFA.

This measurement model was compared to one in which the indicators of coercive and precocious sexuality were ascribed to the PCL-R factor with which they were more highly correlated (i.e., having forced sex on someone and sexual contact with an adult on Factor 1; and number of sexual part-

ners, age at first sex, and arrests for sex offenses under age 18 on Factor 2). This liberal test yielded good fit statistics (e.g., Goodness of fit index = .93, Comparative fit index = .92, RMSEA = .06, Expected value of the cross validation index = .60), but yielded a statistically significantly poorer fit than the model in which coercive and precocious sexuality was a distinct causal factor, χ^2 ($df = 2$) = 45.20, $p < .001$. Together, these factor analyses provided support for the hypothesis that coercive and precocious sexuality is an inherent feature of psychopathy. Next, we examined whether these items would give evidence of an underlying natural discontinuity or taxon.

TAXOMETRIC ANALYSES

The results of the Max-Cov Hitmax taxometric analyses, with three-point moving average smoothing, are shown in Figure 2. The top left panel shows the results for the analysis in which the eight PCL-R items most highly correlated with total PCL-R score were analyzed. The figure shows the classic taxonic result of a peak in mean covariance as the hypothetically discrete groups are mixed, with lower covariance at the extremes where the scores represent either a "pure" taxon group at the high end and complement at the low end. This first result includes four PCL-R items from Factor 2 (proneness to boredom, impulsivity, irresponsibility, and revocation of conditional release), three from PCL-R Factor 1 (callousness, lack of remorse, and conning and manipulation), plus criminal versatility. The upper right panel also shows taxonic results from the Max-Cov Hitmax for the dichotomized (continuous items were dichotomized at zero versus more, except age at first sex which was dichotomized at age 16) coercive and precocious sexuality items, supplemented (because five dichotomous items was too few to conduct the Max-Cov analysis) by the three PCL-R items closest to the construct in manifest content: early behavior problems, juvenile delinquency, and sexual promiscuity. A clear taxonic result was obtained. The lower panels of Figure 2 show the results for eight PCL-R items entirely from Factor 2 (left) and Factor 1 (right), respectively. Clear taxonic results were not evident.

   The Max-Eig Hitmax analysis is similar in rationale to the Max-Cov Hitmax procedure. However, instead of disaggregating subjects based on their scores on the sum of indicators, subjects are ranked according to their scores on a continuous measure and a series of 200 or more "moving windows" is applied such that subgroups are analyzed in accordance with score on the continuous measure. Factor analysis is applied to subjects' individual indicator (i.e., coercive and precocious sexuality items) scores in each window with the expectation that, as the "windows" incorporate maximally mixed subgroups of taxon and complement members, Eigenvalues will also be maximized. We standardized each of the five indicators of coercive and precocious sexuality, so that each would make an equivalent contribution to the total, and summed them for each subject to yield a
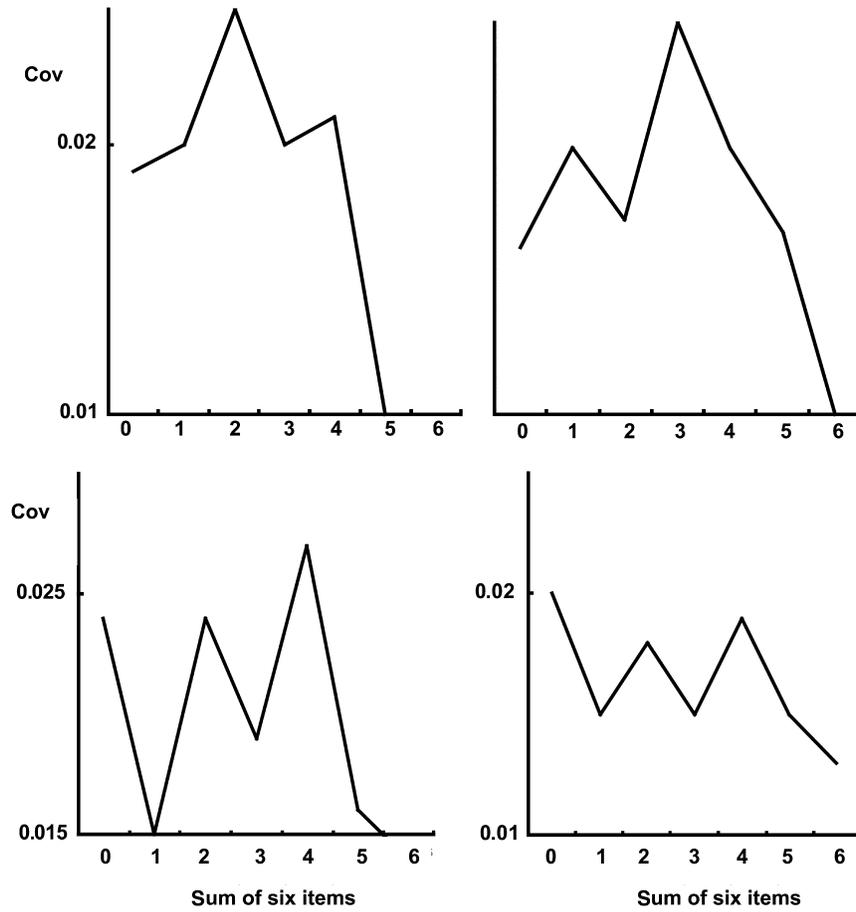
FIGURE 2. Smoothed Max-Cov Hitmax results for: the eight PCL-R items most highly corre-
lated with the total PCL-R score (top left); five coercive and precocious sexuality variables
plus three relevant PCL-R items (top right); eight PCL-R factor 2 items (lower left); and eight
PCL-R factor 1 items (lower right).

continuous measure of the coercive and precocious sexuality construct.
This score was subjected to a Max-Eig Hitmax analysis. The result for 250
windows, shown in the top of Figure 3, was clearly taxonic. Inchworm con-
sistency tests entail gradually increasing the windows from few to the opti-
mal 250 or more seeking a pattern in which the taxonic result gradually
appears. In the present data, inchworm tests were also consistent with a
taxon.

Finally, we applied a MAMBAC procedure to the coercive and precocious
sexuality construct. This time we used the factor score derived from the
factor analysis described above in conjunction with subjects' scores on
Factor 2 of the PCL-R. At each possible score on PCL-R Factor 2, the mean
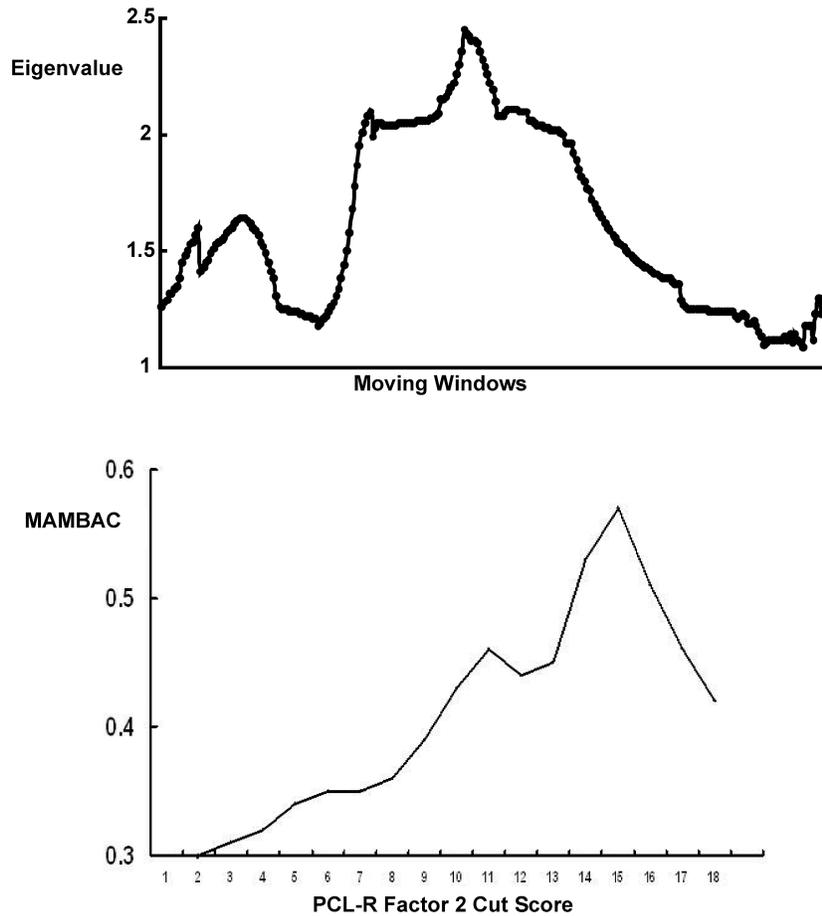on the coercive and precocious sexuality factor for subjects scoring below

FIGURE 3. Max-Eig Hitmax results for the sum of five standardized coercive and precocious sexuality items using 250 moving windows (top); and smoothed MAMBAC (mean above minus mean below a cut) results for the factors scores on coercive and precocious sexuality in conjunction with a moving cut on PCL-R factor 2 (lower).

that PCL-R factor score is subtracted from the mean for subjects scoring above that PCL-R factor score. Again, the expectation is that, if a taxon exists, that difference in means will be maximized when the taxon and complement groups are maximally mixed somewhere in the middle of the range of possible cut scores on the referent scale (in this case, PCL-R Factor 2). Again, the lower panel of Figure 3, with three-point moving average smoothing, shows a clear taxonic result. PCL-R Factor 1 paired with coercive and precocious sexuality did not yield evidence of a taxon. The next task was to examine the relationship between this hypothetical, coercive and precocious sexuality factor and other variables expected to be related (and unrelated) to psychopathy.

COERCIVE AND PRECOCIOUS SEX AND INDICATORS
OF LIFECOURSE ANTISOCIALITY

As in our previous studies and in line with the present hypotheses, those men who had targeted children had significantly lower scores on the PCL-R than those who had not, means = 16.3 (SD = 8.02) 95%CI ± 1.07 versus 19.9 (SD = 8.08) 95% CI ± 1.13. The next analyses examined the relationship between each of many individual study variables and both the coercive precocious sexuality factor and PCL-R score. Some of the subjects had not been released and because the next analyses concerned the relationship between this hypothetical factor and violent and sexual recidivism, we confined our analyses to those subjects (n = 396) for whom we had data on recidivism. For these offenders, we computed a least-squares factor score using our five indicators of coercive and precocious sexuality. Table 1 shows the generally positive correlation between this factor score and several study variables expected to be related to this factor (if it is a fundamental aspect of psychopathy), and the general nonassociation of variables expected not to be related (if coercive and precocious sexuality is a fundamental aspect of psychopathy). The same pattern was observed for the relationships between individual variables and PCL-R scores. Note some results hypothetically pertaining to parental attachment: subjects high in coercive and precocious sexuality tended to exhibit evidence of abuse and neglect in childhood, but not of accompanying pregnancy and perinatal difficulties. More generally, coercive and precocious sexuality was very consistently related to indicators of early-starting antisociality and to its life course persistence; it was also consistently unrelated (or inversely related) to indicators of neurodevelopmental perturbation. These findings generally replicated those we reported previously using different samples (Harris et al., 2001; Lalumière et al., 2001). Overall, Table 1 shows that the pattern of associations with other study variables mirrored those with the PCL-R, but were usually slightly smaller.

We then examined the ability of the coercive and precocious sexuality factor to afford incremental validity in the prediction of violent and sexual recidivism. In multiple regression analyses with rapsheet sexual recidivism as the dependent variable, PCL-R score was selected first (multiple R = .16, F(1, 394) = 10.50, p < .001), but coercive and precocious sexuality made a statistically significant additional contribution to the prediction, β = .15, p < .01. When the PCL-R factors were entered separately, Factor 2 was selected first (multiple R = .23, F(1, 394) = 21.12, p < .001), and the coercive and precocious sexuality factor yielded a statistically significant additional contribution, β = .14, p < .01; but PCL-R Factor 1 scores made no significant additional contribution, β = −.10, ns. When violent recidivism was the outcome, PCL-R score was the stronger predictor, (multiple R = .30, F(1, 394) = 37.48, p < .001), but coercive and precocious sexuality made a marginally significant additional contribution, β = .07, p < .10,

1-tailed. Neither PCL-R Factor 1 nor coercive and precocious sexuality improved upon the ability of PCL-R Factor 2 by itself to predict violent recidivism, multiple R = .40, F(1, 394) = 74.82, $p < .001$. Finally, the associations in the present data between individual items and psychopathy (i.e., a score more than 24 on the PCL-R), assessed by chi-square, were 15.3 and 26.9 for Promiscuity and Short-term marital relationships, respectively. In contrast, the other 18 PCL-R items yielded a mean chi-square of 87.9, range 51.4 to 142.7; items reflecting adult mating effort appeared to afford much less diagnostic value than any of the others.

DISCUSSION

In this study of juvenile sexual behavior and psychopathy among 512 adult sex offenders, factor analyses revealed the two-factor structure of the Hare Psychopathy Checklist and a third, independent but moderately correlated, factor of precocious and coercive and sexuality. Confirmatory factor analysis suggested that the construct of psychopathy might be better re-conceptualized to include items about coercive and precocious mating effort. Promiscuity and multiple marriages, the existing PCL-R sexual behavior items, have not heretofore seemed to be central to the psychopathy construct, perhaps because they are common among other antisocial men as well as psychopaths, and thus these measures of adult sexuality are not diagnostic. The analyses presented here suggested that measures of precocious sex and sexual coercion might make better indicators of psychopathy because it is in these behaviors specifically that the psychopathic life history strategy has differed most from that of other men.

Thus, as reported by others (e.g., Cooke et al., 2006), we find that the present PCL-R items reflecting sexual behavior do not assist with the measurement of psychopathy. Based on the present analyses (and prior findings), however, we propose that interpersonal sexual and nonsexual aggression are not best conceived of as the consequence of psychopathic personality traits, but as fundamental aspects of the condition itself. We suggest that psychopathy is best detected by items that assess interpersonal aggression, exploitation, and coercion in sexual and nonsexual contexts, especially at young ages.

The results of the Max-Cov Hitmax, Max-Eig Hitmax, and MAMBAC analysis of coercive and precocious sexuality and PCL-R Factor 2 were consistent with a taxonic entity. Test of statistical significance are not available for taxometric analyses so these findings cannot be regarded as dispositive. As well, we did not find evidence of a taxon underlying PCL-R factor 1 and even items entirely from PCL-R Factor 2 did not yield a taxonic result in a Max-Cov Hitmax analysis. Together with our earlier work on different subjects, indicating evidence of a taxon underlying scores on conduct disorder, childhood aggression, adult antisocial personality, and PCL-R Factor 2 (Harris et al., 1994; Skilling et al., 2002), plus findings by others of a taxonic entity underlying adult personality disorder (Ayers,

2000), childhood antisociality (Skilling et al., 2001; Vasey et al., 2005), and some interpersonal items on the PCL-R (Cooke, personal communication, March, 2006), we regard the present results as consistent with the finding of a discontinuity underlying some aspects of lifecourse persistent antisociality.

The present analyses also replicated, in a sample of serious sexual aggressors, the association between coercive and precocious sexuality and other lifetime measures of general antisociality, especially measures of psychopathy. Coercive and precocious sexuality was not related to indicators of neurodevelopmental perturbation associated with other serious mental disorders in previous research (Lalumière et al., 2001). Generally, the variables most strongly associated with indicators of coercive and precocious sexuality were variables reflecting earlier antisocial, aggressive childhood conduct (before age 8 and grade 2). That the relationships among coercive and precocious sexuality and lifetime antisociality were detected among men apprehended for serious sexual crimes suggests that, without the attenuation caused by sample censoring, the association between psychopathy and coercive and precocious sexuality is even greater in the population as a whole.

The present study yielded support for psychopathy as a distinct lifetime antisocial strategy involving coercive and precocious sexuality as a fundamental element. We conclude that the centrality of coercive and precocious sexuality is a viable hypothesis for further study and replication in other samples. Our sample was limited to sex offenders, who might engage in high rates of sexual behavior because their sexuality is compulsive or disordered, rather than because of high mating effort and a risky life strategy. For this reason, it is premature to suggest replacing PCL-R items pertaining to promiscuity and multiple marriages. Nevertheless, the present results do encourage testing items pertaining to age at first sexual intercourse, number of sexual partners as an adolescent, and history of sexual coercion, to future PCL-R versions. In a study of non-offenders, age at first intercourse was more closely related to antisociality than to such measures of sexuality as perceived mating success and interest in casual sex (Quinsey et al., 2001). Future research could examine the contribution of other aspects of sexuality.

PSYCHOPATHIC SEXUALITY AS A TAXON

Not all attempts to find evidence of a discontinuity in PCL-R scores have been successful (Edens et al., 2006), and, after several attempts, there are no reports of a taxonic result for PCL-R Factor 1 items by themselves, the primarily affective aspects of psychopathy commonly regarded as its "core personality traits." Perhaps the taxonic findings actually reveal a discontinuity underlying something other than, but correlated with, psychopathy. On the other hand, the present pattern of results indicated an excellent measurement model fit when coercive and precocious sexuality was con-

sidered a fundamental aspect of psychopathy, and coercive and preco-
cious sexuality gave evidence of taxonicity in conjunction with some PCL-
R items. Thus, we suggest that some, but perhaps not all, aspects of
psychopathy are taxonic.

A clue to such "partial taxonicity" comes from intriguing findings by
Hicks and Patrick (2006) who showed that, although the two traditional
PCL-R factors correlated .51, several measures of negative emotionality
(e.g., the tendency to experience fear, anger, and anxiety) were related to
the factors in opposite ways. That is, Factor 1 was inversely related, and
Factor 2 positively related, to measures of negative emotionality. Two re-
lated phenomena – high emotional stability, fearlessness, and antisociality
(close to Factor 1 and the phenomenon Cleckley first described); and emo-
tional lability, impulsivity, and much greater interpersonal dangerousness
(close to Factor 2 and the taxonic findings) – could both yield high PCL-R
scores for different reasons. That is, high PCL-R scores could arise from
two distinct processes, only one of which arises from natural discontinu-
ity. The aspects of psychopathy (Factor 2, generally) most strongly related
to the most important social outcomes (violent crime, self harm, etc.), are
also those that appear to give evidence of an underlying discontinuity.

The present evidence that coercive and sexual behavior could be a fun-
damental aspect of psychopathy, together with the earlier finding that psy-
chopathy is related to arousal to depictions of coercive sex (Harris, 1998;
Harris et al, 2004; Rice, Harris, & Quinsey, 1990), calls for further phallo-
metric studies. Do psychopaths respond more to sexual stimuli depicting
violence, coercion, and rape simply because they are indifferent to the suf-
fering of others, or does psychopathy entail a mechanism promoting coer-
cive sex? Our selectionist account of psychopathy expects psychopaths
to exhibit masculine "hyper-dominance" (i.e., high mating effort, sexual
ascendance, and sexual responding to stimuli others see as asexual). Our
account also expects either a sexual preference for coercion that does not
result in serious injury, or sexual indifference to the experiences of vic-
tims, but not a sexual preference for death or serious injury.

THE SELECTIONIST HYPOTHESIS

From a theoretical perspective, the present results lend some support to
the selectionist hypothesis that psychopathy exists because it has been a
heritable and reproductively viable condition during human evolution.
Our consideration of the potential coercive and precocious sexuality indi-
cators of psychopathy was driven by this hypothesis. The results demon-
strate the powerfully heuristic nature of theory in psychology. Far from
"just so" stories, selectionist accounts of psychological phenomena often
suggest novel hypotheses amenable to empirical testing. Let us return to
the intriguing matter of psychopaths as parents as an example. Male psy-
chopaths would be expected to engage in a reproductively successful strat-
egy including high mating effort and minimal parental investment. Al-

though the current generation does not afford a strong test because the modern environment differs from that of our ancestors, PCL-R score was associated in the present sample with slightly more biological offspring (after controlling for opportunity), $\beta = .148$, $p < .10$, 1-tailed. Fewer offspring in ancestral populations would be inconsistent with the selectionist hypothesis.

Less is known about female psychopaths, especially as parents. The selectionist account would expect psychopathic mothers to be negligent or abusive only in certain ways. They would seem detached or uninterested in their children (Hans, Bernstein, & Henson, 1999; Shaw et al., 2003; Swaim, 1991) or, they might abandon them but only under circumstances in which the children might reasonably survive (being cared for by others), or in which she would otherwise enhance her reproductive potential (Harpending & Sobus, 1987). Only under the latter conditions would psychopathic mothers be expected to kill their children, in contrast to the conditions under which nonpsychopathic mothers have been noted to kill their children (Harris, Hilton, Rice, & Eke, in press). Psychopathic mothers should, in theory, exaggerate their need for help, perhaps displaying signs of depression (Hay, Pawlby, Angold, Harold, & Sharp, 2003).

Adolescent antisociality has consistently been related to poor parenting characterized by neglect, abuse, poor monitoring, parental conflict, and unskilled socialization (Capaldi & Clarke, 1998; Farrington, Loever, & VanKammen, 1990; McCord, 1999; McDonald, Jouriles, Norwood, Ware, & Ezell, 2000; Smith, Ireland, & Thornberry, 2005; Straus & McCord, 1998; Widom & Maxfield, 1996; Zingraff, Leiter, Myers, & Johnson, 1994). Although it seems likely that extreme maltreatment or deprivation has a causal role in antisociality and aggression, the selectionist account of psychopathy as an alternative life history strategy posits a different explanation; that is, some co-occurrence of these parent and child behaviors is due to common inheritance. Thus, psychopathic children might have mothers who seemed especially disinterested in them as fetuses, but who had no intention to harm them (c.f., Pollock & Percy, 1999). Similarly, one would expect to observe a constellation of features in the mothers of antisocial individuals, including disinterest or disordered attachment, marital breakup, and children being raised by others (c.f., Levy & Orlans, 1999).

There is evidently a synergistic relationship between parental behavior and the behavior of children (Patterson & Stouthhamer-Loeber, 1984). Indeed, highly reactive, difficult temperamental traits in children appear to do as much to elicit characteristic patterns of detached parental conduct as *vice versa* (Shaw, Bell, & Gilliom, 2000; Stoolmiller & Snyder, 2004). The hypothesis about psychopathy as a life history strategy implies that children would not be passive recipients, but would exhibit traits that maximize survival. Thus, they might be expected to exhibit attachment styles associated with increased investment of resources from adults (Fraley & Speiker, 2003) rather than secure attachment or the disorganized/ disoriented attachment one might associate with severe disorder (Rich,

2004). As well, although some children who grow up to be antisocial would be expected to exhibit visible evidence of neurodevelopmental disruption from birth and be perceived as unattractive to adults (Volk & Quinsey, 2002), that should not be true of infants who later become psychopaths; indeed, psychopaths should be at least as attractive as other children in infancy.

At the other end of the life span, the present selectionist account expects that the lives of psychopaths would be shorter than average, and especially that their deaths would be disproportionately characterized by risky activities (accidents, substance abuse, and criminal activity). There are empirical reports confirming this (Black, Baumgard, Bell, & Kao, 1996). Some researchers report that psychopaths are also more likely to commit or attempt suicide (Black et al., 1996; Verona, Patrick, & Joiner, 2001), at first blush, inconsistent with a selectionist account. However, if psychopaths had had as many offspring as other men even though they had shorter lives, suicide could be seen as theoretically irrelevant (viz., de Catenzaro, 1991).

One might argue that it matters little whether psychopathy has been a reproductively viable life history strategy during human evolution. Important and interesting questions pertain to the proximal nature of psychopathy, especially as its characteristic features illuminate the neuropsychology of the condition and implications for management and treatment. As we have attempted to illustrate elsewhere (Harris & Rice, 2006; Quinsey & Seto, 2006), however, assumptions about the ultimate basis of psychopathy have profound implications for the types of intervention entertained. Without the hypothesis that psychopaths were fundamentally different from other offenders, one would expect intensive therapies to work as well for psychopaths as they do for other offenders; one would not have expected (and would have difficulty explaining) the finding that an intervention effective for disordered offenders to have had the opposite effect upon psychopaths (Rice et al., 1992). Thus, from a scientific perspective and as we have tried to demonstrate here, this selectionist hypothesis leads to predictions and empirical tests that would not otherwise have been contemplated. The results of such tests are not only of intrinsic scientific interest in themselves, but can also lead to improved assessment, diagnosis, and intervention.

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