

The Relationship of Deviant Sexual Arousal and Psychopathy in Incest Offenders, Extrafamilial Child Molesters, and Rapists

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The relationship between deviant sexual arousal, as measured by auditory phallometric stimuli, and psychopathy, as measured by the Psychopathy Checklist-Revised, was examined in 156 incest offenders, 260 extrafamilial child molesters, and 123 rapists. Subjects in each group had never been convicted of another type of sexual offense. Replicating previous research, rapists were more psychopathic than incest offenders and child molesters. Deviant sexual arousal to auditory stimuli was evident only on the Pedophile Index for child molesters. When the relationship between psychopathy and deviant sexual arousal was evaluated in the three groups combined, several significant correlations emerged. However, a finer analysis of these correlations revealed that child molesters evidenced a significant correlation between psychopathy and the Rape Index and psychopathy and the Pedophile Index. There were no such significant findings in the incest offender or rapist groups. Implications of the results are discussed.

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Effective management of sexual offenders requires knowledge of variables that indicate risk of reoffense and dangerousness. Previous research has established that variables such as phallometric results, scores on the Psychopathy Checklist Revised (PCL-R),¹ alcohol problems, and previous criminal history are predictive of recidivism in sexual offenders.² Furthermore, different factors may be more critical for different types of sexual offenders.^{3–5} In particular, sexual deviance and psychopathy have been associated with sexually coercive behavior in males.⁶

Phallometric assessments indicate that deviant sexual preferences and fantasies may play an important role in motivating sexual offenses, particularly

for extrafamilial child molesters and rapists.^{6,7} Researchers disagree as to the extent that rapists are sexually deviant. Some researchers report that rapists, as a group, exhibit deviant patterns of sexual preferences in phallometric assessments,^{8,9} while others conclude that sexual arousal patterns are not effective in distinguishing rapists from nonrapists.¹⁰ Marshall *et al.*¹¹ and Quinsey *et al.*¹² suggest that incest offenders exhibit more normal sexual age preferences than do child molesters.

Psychopathy as measured by the PCL-R is highly predictive of both general and violent recidivism in correctional and psychiatric populations.^{7, 13, 14} In sexual offending populations, the prevalence of psychopathy appears to be particularly high among offenders designated as “sexually dangerous” by the courts. Psychopathic sexual offenders show higher recidivism rates and tend to recidivate more quickly than nonpsychopathic sexual offenders.¹² Most dan-

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gerous of all are the psychopaths sexually aroused by violence.¹⁵⁻¹⁸ In fact, psychopathy, as measured by the PCL-R, has predicted sexual recidivism among institutionalized rapists¹² as well as violent recidivism among incest offenders and child molesters.³⁻⁵

Demonstrating a significant relationship between deviant sexual arousal and psychopathy in a particular group of sexual offenders would require attention from those involved in the treatment and management decisions concerning those offenders. In this regard some studies have reported that an interaction between psychopathy and sexual deviance predicted sexual recidivism among rapists.¹⁹ Some studies have reported significant correlations of .20 and .28 between psychopathy and sexual deviance in rapists and men convicted of sexually molesting children (a combined group of incest and extrafamilial child molesters).^{12, 20} When differentiating between the groups, the relationship appeared to be strongest with extrafamilial child molesters, followed by rapists, and a negative relationship was found with incest offenders. However, none of these correlations was statistically significant, possibly due to small sample sizes.

A literature review revealed that with respect to psychopathy and deviant sexual arousal, the subjects studied were all assessed while incarcerated or shortly after release while on probation. In addition, the literature review revealed that these men have generally been classified on the basis of their index offense, irrespective of the type of previous sexual convictions. In our investigations we discovered that over 30 percent of convicted rapists, incest offenders, and child molesters, in our jurisdiction, did not receive jail sentences.³⁻⁵ Studying only incarcerated subjects may not provide comprehensive information on the larger population of men convicted of sexual offenses. Furthermore, the experience of incarceration may affect the subsequent assessment of these men.

In the present investigation, subjects were assessed during the adjudication or sentencing process at the request of the courts. Furthermore, they were considered incest offenders, child molesters, or rapists only if they had not committed another type of sexual offense. Specifically, this study was designed to (1) compare the prevalence of psychopathy and phallometric indexes of deviant sexual arousal; and (2) study the relationship between phallometrically assessed deviant sexual arousal and psychopathy, as measured by the PCL-R, among a large sample of incest offenders, child molesters, and rapists.

Participants

Subjects were assessed at the Royal Ottawa Hospital, Sexual Behaviors Clinic between 1982 and 1992. The Sexual Behaviors Clinic is a training and research center for the University of Ottawa. As such, all aspects of the research required approval by the hospital ethics committee. Each participant signed a consent form indicating he agreed that his results could be used anonymously, as part of group data, for research purposes. Subjects had been assessed for trial or sentencing purposes. They were essentially consecutive male referrals, 18 years of age or older at the time of their offense, and the groups were constituted so as to be pure as far as sex offenses are concerned. The 123 rapists had coerced or forced sexual activity on an unrelated female aged 16 or more and had no police record of a history of sexual offenses against children. The 260 child molesters had all been convicted of a hands-on sexual offense against an unrelated male or female child who was under the age of 16 at the time of the offense. If the police records indicated a subject had ever been charged with or convicted of a sexual offense against an adult, or against a family member, the subject was not included. The 156 incest offenders had all been convicted of a hands-on sexual offense against one or more related male or female family members (biological, stepchild, niece, grandchild, or sibling) who was under the age of 16 at the time of the offense. If the police records indicated a subject had ever been charged with or convicted of an offense against an adult, or against an unrelated child, the subject was not included.

Procedure

Psychopathy

The Psychopathy Checklist-Revised (PCL-R)¹ is a 20-item rating scale (scores range from 0 to 40) designed to assess behaviors and personality characteristics considered fundamental to psychopathy. Psychometric properties have been well-established with male offenders and forensic patients, and indices of internal consistency and interrater reliability are high; the reported alpha coefficient was .87. Valid PCL-R ratings can be made on the basis of high quality archival information.^{12, 21} The PCL-R is beginning to receive widespread use in sex offender research.^{12, 20} Factor analyses have consistently revealed two stable factors; Factor 1 (F1) consists of

items having to do with the affective/interpersonal features of psychopathy, while Factor 2 (F2) reflects features associated with an impulsive, unstable, anti-social lifestyle.²² Using five prison samples ($n = 925$) and three forensic samples ($n = 356$), the correlation between the two factors averaged .48. Previous studies have found the interrater reliability and internal consistency of both factors to be high despite the small number of items per factor. In the present investigation, the PCL-R was completed from descriptive material contained in institutional files by two research assistants. A random sample of 100 clinic files was independently rated by each researcher, resulting in satisfactory interrater reliability correlation ($r = .88, p < .0001$).

Measurement of Sexual Arousal

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

Participants were presented with one or more of three series of audio tapes, according to the nature of the sexual offense. The audio tapes consisted of 120-second vignettes which described sexual activities varying in age, gender, and degree of consent, coercion, and/or violence portrayed.²³ Each subject was presented with a full set containing one vignette from each category following instructions to allow normal arousal to occur. The female child series consisted of descriptions of sexual activity with a female partner/victim but also included one scenario involving an adult female partner. For each of the female child and male child series, two equivalent scenarios for each category were included. Categories were: (a) child initiates, (b) child mutual, (c) nonphysical coercion of child, (d) physical coercion of child, (e) sadistic sex with child, (f) nonsexual assault of child, (g) consenting sex with adult female, (h) sex with female child relative. The audio tape series used to identify sexual attraction to rape included two scenarios of two-minute duration for each of three categories: (1) consenting sex with adult female, (2) rape of adult female, and (3) nonsexual assault of adult female.

The Pedophile Index (PI) was computed by dividing the highest response to the child initiates or child mutual stimulus by the highest response to an adult consenting stimulus. The Pedophile Assault Index

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

Statistical Analysis

Data were screened to ensure assumptions were met. Outliers were detected by using a criterion of plus or minus 3.29 standard deviations from the mean, and adjusted upward or downward depending on the direction of the problem.²⁴ Cases with missing data were excluded from the analyses. Differences between groups on the PCL-R and the indexes of deviant sexual arousal were tested by analyses of covariance (ANCOVAs), using age as a covariate, since age may affect scores on the PCL-R and phallometric measurements. Significant ANCOVAs were followed by *post hoc* Bonferroni comparisons to identify specific differences between groups. A modified Bonferroni adjustment²⁵ to the degrees of freedom was applied to control for type I error rate; the corrected α -level was .014.

Owing to lack of assessments using child stimuli, rapists were excluded from analyses involving the PAI and the PI.

Results

Age, Psychopathy, and Deviant Arousal

As described in Table 1, a one-way analysis of variance was conducted to compare the ages of the groups. Incest offenders were found to be significantly older than the rapists and child molesters, and child molesters were significantly older than rapists.

For the PCL-R, three ANCOVAs, using age as a covariate, were conducted and achieved statistical significance for Factor 1: $F(2,384) = 5.84, p = .003$, Factor 2: $F(2,279) = 7.52, p = .001$, and the Total Score: $F(2,386) = 17.77, p = .001$. *Post hoc* analyses revealed that in each case the rapist group scored significantly higher than the other two groups, which did not differ from each other.

The ANCOVAs on the phallometric scores were

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Table 1 Age, Psychopathy, and Phallometric Scores for Sexual Offender Groups

	Incest Offenders	Child Molesters	Rapists	<i>F</i>	<i>p</i> <
Age, years	40.60 ± 8.67 (156) ^a	37.33 ± 12.93 (260)	31.75 ± 10.96 (122)	20.80	.001
PCL-R					
Factor 1	9.27 ± 2.89 (143)	8.58 ± 3.30 (170)	10.07 ± 3.64 (76)	5.84	.003
Factor 2	7.19 ± 4.30 (91)	7.72 ± 5.25 (128)	11.53 ± 4.60 (76)	7.52	.001
Total Score	18.64 ± 6.26 (142)	18.32 ± 8.00 (171)	25.17 ± 8.24 (76)	17.77	.001
Phallometric scores					
AI ^b	.22 ± .42 (148)	.27 ± .45 (235)	.20 ± .33 (80)	.91	.403
RI	.58 ± .75 (148)	.53 ± .63 (235)	.67 ± .66 (81)	.70	.498
PI	.86 ± .92 (155)	1.36 ± 1.54 (181)		4.75	.005
PAI	.74 ± .76 (154)	.79 ± .67 (183)		.25	.778

^aNumbers in parentheses, number of subjects.

^bAI, Assault Index.

conducted, using age as a covariate, and statistical significance was achieved only on the PI: $F(2,345) = 4.75$, $p = .009$, with child molesters, on average, scoring higher than incest offenders.

Relationship between Psychopathy and Deviant Sexual Arousal

The Pearson correlation matrix between the measures of psychopathy and deviant sexual arousal are presented in Table 2. For the Total Population, there were significant correlations between F2 and the RI, $r(268) = .20$, $p < .01$, and between F2 and the PAI, $r(219) = .178$, $p < .05$. There was also a significant correlation between the PCL-R Total Score and RI, $r(369) = .107$, $p < .05$. However, a follow-up analysis within the offending groups revealed significant correlations only for child molesters. Factor 1, Factor 2, and the Total Score correlated significantly with the RI and the PAI. There was also a significant correlation between the Total Score and the PI in this group.

Discussion

The results in the present investigation are generally supportive of previous research. Incest perpetrators tend to be older since, as a group, their sexual offenses are more opportunistic in nature. They do not offend until after they are married and have children. On the other hand child molesters, who tend to be more sexually aroused to children than incest offenders, tend to be more predatory in their offense patterns and therefore often are younger when they start their sexual offenses. Rapists, as a group, tend to be more antisocial than the other two groups and present at a younger age, having had numerous contacts with the legal justice system.

The PCL-R scores of the rapist group were significantly higher than those of the incest offenders and the child molesters, indicating that rapists were more psychopathic, a finding consistent with previous reports (A. E. Forth and D. Kroner, unpublished manuscript, 1994). The PCL-R scores for the three

Table 2 Correlations Between the PCL-R and Measures of Deviant Sexual Arousal for Sexual Offender Groups

	PCL-R	AI	RI	PI	PAI
Total population	Factor 1	-.044 (368) ^a	.063 (369)	.012 (312)	.068 (312)
	Factor 2	.067 (267)	.197 (268)**	.075 (219)	.178 (219)**
	Total Score	.002 (367)	.107 (369)*	.051 (313)	.057 (274)
Incest offenders	Factor 1	-.083 (136)	-.023 (136)	.081 (141)	-.044 (142)
	Factor 2	.030 (86)	.052 (86)	-.007 (90)	.137 (91)
	Total Score	-.047 (134)	-.062 (134)	-.112 (140)	-.119 (141)
Child molesters	Factor 1	.078 (161)	.225 (161)*	.059 (163)	.177 (162)*
	Factor 2	.134 (120)	.320 (120)**	.116 (122)	.210 (121)*
	Total Score	.118 (162)	.296 (162)**	.157 (164)*	.190 (163)*
Rapists	Factor 1	-.228 (71)	-.158 (72)		
	Factor 2	.022 (62)	.067 (62)		
	Total Score	-.131 (72)	-.085 (73)		

^aNumbers in parentheses, number of subjects.

* $p < .05$, ** $p < .01$.

offender groups in the present investigation were similar to those in other publications that have studied rapists, incest offenders, and child molesters.^{12, 19} The psychopathy scores were clearly not as high as those found in serial rapists or rapists who killed their victims (Forth AE, Kroner D, unpublished manuscript, 1994).

The findings concerning deviant sexual arousal are also generally supportive of the literature concerning the utility of phallometric scores in the assessment of sexual offenders. Deviant sexual arousal cutoff scores of 1.00 identify a substantial number of offenders as sexually deviant with few false positives.^{9, 26-28} In the present investigation the child molesters, on average, scored above 1.00 on the PI, indicating the presence of deviant sexual arousal. However, since clinicians often consider scores of approximately .8 or .9 to be clinically significant,¹¹ it is important to note that child molesters displayed clinically significant deviant sexual arousal on the PAI, and incest offenders on the PI. The rapists in the present study did not evidence any deviant sexual arousal. This replicates previous research that suggests that rapists do not always display greater arousal to forced sex than nonrapist males; in fact, both groups tend to be more aroused by consenting sex.²⁹⁻³¹ Rapists tend to be quite heterogeneous in their characteristics,³² and it is possible that deviant sexual arousal occurs only among certain subgroups. For instance, research has suggested that sadists are the only rapists who are consistently identified as deviant by phallometric assessments.³³ The rapists in the present sample included men convicted of "date rape" as well as other types of sexual assaults. Undoubtedly, this resulted in a group that is less pathological and less aroused by sexual violence than would be found in samples of more violent, sadistic rapists.

The statistically significant correlations between psychopathy and deviant sexual arousal were generally weak but of considerable interest. In terms of the relationship between deviant sexual arousal and psychopathy, collapsing across sexual offenders revealed the presence of a significant relationship between psychopathy and deviant sexual arousal. However, this correlation masked an important finding. When the offender groups were separated, the correlation between deviant sexual arousal and psychopathy was significant only for extrafamilial child molesters, not for rapists or incest offenders. Similarly, Serin *et al.*²⁰ also found that a stronger (but not significant) rela-

tionship existed for child molesters, compared to incest offenders and rapists. Interestingly, the relationship between deviant sexual arousal and psychopathy for child molesters appears greater on the RI and PAI, both of which represent auditory depictions of sexual violence. Child molesters who display both deviant sexual arousal and high scores on the PCL-R may be less likely to be able to inhibit their sexual urges and obtain sexual gratification opportunistically.¹² Hanson and Bussiere² determined that deviant sexual preferences represented the largest single predictor of sexual offense recidivism for child molesters, and combined with high scores on the PCL-R, these child molesters appear to be at greatest risk.

This investigation was limited due to several features. The small number of rapists assessed with the deviant child stimuli precluded analyses involving these indices for the rapist group. Furthermore, the rapists, as a group, did not demonstrate deviant sexual arousal. This may be a function of the sample studies. A homogeneous group of more sadistic, serial rapists for comparison would be useful, since sexual preference to rape stimuli may be relevant only to these populations. Nevertheless, the present group of rapists does reflect the broader array of sexual assaults against adults that normally appear before the courts.

The findings suggest that there clearly is a significant relationship between deviant sexual arousal and psychopathy in extrafamilial child molesters. Research has established that deviant arousal is predictive of sexual reoffense among child molesters^{2, 34} and psychopathy predicts sexual and violent recidivism.^{12, 14} It appears that more psychopathic child molesters show higher levels of deviant sexual arousal to the more sexually violent indexes (RI and PAI), and clinicians would be wise to consider these factors when estimating risk of recidivism and determining management and treatment programs.

References

1. Hare RD: Manual for the Revised Psychopathy Checklist. Toronto: Multi-Health Systems, 1991
2. Hanson RK., Bussiere MT: Predicting relapse: a meta-analysis of sexual offender recidivism studies. *J Consult Clin Psychol* 66: 348-62, 1998
3. Firestone P, Bradford JM, Greenberg DM, McCoy M, Larose MR, Curry S: Prediction of recidivism in incest offenders. *J Interpers Violence* 14:511-31, 1999
4. Firestone P, Bradford JM, McCoy M, Greenberg DM, Curry S, Larose MR: Recidivism in convicted rapists. *J Am Acad Psychiatry Law* 26:537-52, 1998
5. Firestone P, Bradford JM, McCoy M, Greenberg DM, Curry S,

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- Larose MR: Prediction of recidivism in extrafamilial child molesters based on court related assessments. *Sex Abuse J Res Treat* 12:203-21, 2000
6. Lalumiere ML, Quinsey VL: Sexual deviance, antisociality, mating effort, and the use of sexually coercive behaviors. *Pers Individ Differ* 21:33-48, 1996
 7. Rice ME, Quinsey VL, Harris GT: Sexual recidivism among child molesters released from a maximum security psychiatric institution. *J Consult Clin Psychol* 59:381-6, 1991
 8. Lalumiere ML, Quinsey VL: The sensitivity of phallometric measures with rapists. *Ann Sex Res* 6:123-38, 1993
 9. Lalumiere ML, Quinsey VL: The discriminability of rapists from non-sex offenders using phallometric measures: a meta-analysis. *Crim Just Behav* 21:150-75, 1994
 10. Blader JC, Marshall WL: Is assessment of sexual arousal in rapists worthwhile? A critique of current methods and the development of a response compatibility approach. *Clin Psychol Rev* 9:569-87, 1989
 11. Marshall WL, Barbaree HE, Eccles A: Early onset and deviant sexuality in child molesters. *J Interpers Violence* 6:323-36, 1991
 12. Quinsey VL, Rice ME, Harris GT: Actuarial prediction of sexual recidivism. *J Interpers Violence* 10:85-105, 1995
 13. Hare RD: Psychopathy: a clinical construct whose time has come. *Crim Just Behav* 23:25-54, 1996
 14. Hart SD, Kropp PD, Hare RD: Performance of male psychopaths following conditional release from prison. *J Consult Clin Psychol* 56:227-32, 1988
 15. Rice ME, Harris GT, Quinsey VL: A follow-up of rapists assessed in a maximum-security psychiatric facility. *J Interpers Violence* 5:435-48, 1990
 16. Serin RC: Psychopathy and violence in criminals. *J Interpers Violence* 6:423-31, 1991
 17. Williamson SE, Hare RD, Wong S: Violence: criminal psychopaths and their victims. *Can J Behav Sci* 19:454-62, 1987
 18. Rice ME, Quinsey VL, Harris GT: Sexual recidivism among child molesters released from a maximum security psychiatric institution. *J Consult Clin Psychol* 59:381-6, 1991
 19. Rice ME, Harris GT: Psychopathy, sexual deviance, and the recidivism of sex offenders. Presented at the Annual Forensic Conference, Penetanguishene, Ontario, June 1994
 20. Serin RC, Malcolm PB, Khanna A, Barbaree HE: Psychopathy and deviant sexual arousal in incarcerated sexual offenders. *J Interpers Violence* 9:3-11, 1994
 21. Harris GT, Rice ME, Quinsey VL: Psychopathy as a taxon: evidence that psychopaths are a discrete class. *J Consult Clin Psychol* 56:227-32, 1994
 22. Hare RD, Harpur TJ, Haksian AR, Forth AE, Hart SD, Newman JP: The Revised Psychopathy Checklist: descriptive statistics, reliability, and factor structure. *Psychol Assess* 2:238-341, 1990
 23. Abel GG, Blanchard EB, Barlow DH: Measurement of sexual arousal in several paraphilias: the effects of stimulus modality, instructional set, and stimulus content on the objective. *Behav Res Ther* 19:25-33, 1981
 24. Tabachnick BG, Fidell LS: *Using Multivariate Statistics* (ed 3). New York: HarperCollins College Publishers Inc, 1996
 25. Keppel G: *Design and Analysis: A Researcher's Handbook* (ed 3). Upper Saddle River, NJ: Prentice Hall, Inc, 1991
 26. Freund K, Watson R, Dickey R: Sex offenses against female children perpetrated by men who are not pedophiles. *J Sex Res* 28:409-23, 1991
 27. Marshall WL, Barbaree HE, Christophe D: Sexual offenders against female children: sexual preferences for age of victims and type of behavior. *Can J Behav Sci* 18:424-39, 1986
 28. Quinsey VL, Chaplin TC, Carrigan WF: Sexual preferences among incestuous and nonincestuous child molesters. *Behav Ther* 10:562-5, 1979
 29. Baxter DJ, Barbaree HE, Marshall WL: Sexual responses to consenting and forced sex in a large sample of rapists and nonrapists. *Behav Res Ther* 24:513-20, 1986
 30. Hall GCN: Sexual arousal and arousability in a sexual offender population. *J Abnorm Psychol* 98:145-9, 1989
 31. Wormith JS, Bradford JM, Pawlak A, Borzecki M, Zohar A: The assessment of deviant sexual arousal as a function of intelligence, instructional set and alcohol ingestion. *Can J Psychiatry* 33:800-3, 1988
 32. Prentky RA, Knight RA: Identifying critical dimensions for discriminating among rapists. *J Clin Consult Psychol* 59:643-61, 1991
 33. Marshall WL, Genest M: Sexual disorders, in *Abnormal Psychology*. Edited by Marshall WL, Firestone P. Toronto: Prentice Hall, 1999, pp 285-315
 34. Barbaree HE, Marshall WL: Erectile response amongst heterosexual child molesters, father-daughter incest offenders and matched nonoffenders: five distinct age preference profiles. *Can J Behav Sci* 21:70-82, 1988