In total, 14 heterosexual, 7 homosexual, and 4 bisexual child molesters from a maximum security psychiatric institution were compared with 8 low SES men from the local community and 6 nonsex offenders from the same institution. Penile tumescence changes were measured in response to 22 audiotaped descriptions involving consenting sex with an adult partner, sex with a child (at 3 levels of force and violence), nonsexual violence with a child victim, and neutral interactions with a child. Half of the target persons in the stories were male and half female. Child molesters preferred stories depicting sex with children to sex with adults, showed sexual interest in children of both genders, and did not respond to depictions of nonsexual violence. Compared to other child molesters, those who had physically injured their victims responded relatively more to children than adults and to coercive sex with children. Comparison subjects showed no sexual interest in any of the stories involving children.

Penile Responses of Child Molesters and Normals to Descriptions of Encounters with Children Involving Sex and Violence

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Violent sexual behaviors involving child victims have been reported in a variety of temporal and cultural contexts (Quinsey, 1986). Among the best known and most vicious descriptions of sadistic practices directed toward children date from the time of the French Revolution (De Sade, 1785/1966). However, despite such descriptions and considerable speculation concerning the etiology and nature of sexual sadism, the scientific examination of sadistic interest in

Authors' Note: We wish to thank C. Earls, G. Harris, and M. Rice for comments on an earlier version of this article. Reprint requests should be sent to Vernon Quinsey who is now at the Psychology Department, Queen's University, Kingston, Ontario, K7L 3N6.

children is much more recent and involves only a handful of studies.

Recent research has shown that descriptions of dominance and submission and the infliction of pain are common in current erotic literature (Dietz & Evans, 1982; Malamuth & Spinner, 1980), that dominance/submission and pain infliction involving adult females are not unusual personal fantasy themes among "normal" men (Crepault & Couture, 1980), and that underground networks of both men and women exist who enjoy such behaviors as spanking and bondage (Breslow, Evans, & Langley, 1985).

As indicated in the above discussion, the actual behaviors subsumed under the rubric "sadistic" are quite different from each other: varying from murder and mutilation to mutually consenting bondage games and from overt behavior to fantasy (e.g., de River, 1957). As MacCulloch, Snowden, Wood, and Mills (1983) have pointed out, there is not only a variety of behaviors involved but a variety of definitions of sadism. For the purposes of this article, however, sadism will be defined as a sexual attraction to, or a sexual preference for, behaviors involving the infliction of pain or physical injury to another person.

There is unambiguous evidence that small numbers of men find both the fantasy of extremely violent sexual behaviors and the actual commission of sexual violence to be erotically stimulating (Brittain, 1970). In addition, it has been found that many of these men carry out components of their sadistic fantasies as behavioral rehearsals before the actual commission of acts such as sexual murders (MacCulloch et al., 1983). In view of the important role that sadistic sexual fantasy plays in the commission of these extreme acts, and of violent sexual acts of lesser intensity, it is not surprising that men who have committed violent rapes tend to become more sexually aroused to descriptions of violent sexual scenes than ordinary men (Quinsey & Chaplin, 1982; Quinsey, Chaplin, & Varney, 1984). Thus the commission of violent sexual acts has been related both to self-reported violent sexual fantasies and to sexual responsiveness to violent sexual imagery. Although violent sexual fantasies entertained by individual men are idiosyncratic in nature, the description of standardized scenes involving sexual violence apparently shares enough in common with individual offenders' sexual fantasies to permit group differentiation of rapists from nonrapists using penile plethysmography (Quinsey, 1984).

Most of the scientific interest in sadism has been directed toward persons who are erotically attracted to adults (usually women) and much less attention has been focused on men who are sexually
interested in children. There have been varying estimates of what proportion of child molesters have sadistic interests and/or cause physical injury to their victims but there are certainly enough of these men to justify scientific and social policy interest (Marshall & Christie, 1981; Quinsey, 1986). As would be expected from what we know about the role of fantasy in the commission of violent sexual crimes against adults, Abel, Becker, Murphy, and Flanagan (1981) reported that a substantial proportion of a small number of child molesters whom they tested phallometrically exhibited marked sexual arousal to descriptions of sexual violence directed toward child victims.

This finding has been confirmed in a larger study conducted by Avery-Clark and Laws (1984). These investigators had raters assign 15 child molesters to a relatively more dangerous group and 16 to a less dangerous group on the basis of the offenders' hospital files and offense history descriptions. The penile circumference responses of these subjects were measured in response to five audiotaped story categories involving child partner/victims: "mutually consenting" fondling, "consenting" intercourse, nonconsenting intercourse (with physical but not violent pressure), aggressive intercourse (with unnecessary physical violence), and violent nonsexual physical assault. One set of stimuli, involving boys, was developed for homosexual child molesters and a corresponding set, involving girls, for heterosexual child molesters. A ratio was formed for each subject by dividing his mean penile response to aggressive cues by his average response to consenting cues. This measure of relative preference was significantly higher among the child molesters assigned to the more dangerous category.

The purpose of the present study was to provide an altered replication of the important observations reported by Abel et al. (1981) and Avery-Clark and Laws (1984) by including a comparison group of nonsex offenders, and by using different stimuli, control stimuli (adult consenting sex and neutral or nonsexual stories), and child stimuli of both genders.

METHOD

Subjects

The child molester subjects were 25 males who had been referred to the maximum security Oak Ridge Division of the Mental Health
Centre in Penetanguishene for assessment or treatment following the commission of at least one sexual offense involving physical contact with an unrelated child of less than 14 years of age. Their average age was 30.9 years (sd = 8.6) and they had completed an average of 8.1 (sd = 3.1) grades of school. Their average estimated IQ was 96.8 (sd = 18.3).

At the time of testing, 7 were married or in a common-law relationship, 13 were single, and the remainder were divorced or separated. In total, 15 of these subjects reported having had little or no homosexual experience. Overall, 23 were diagnosed as personality disordered, 1 as psychotic, and 1 was unknown. Of these subjects, 8 had been tested in our laboratory before and 3 had unsuccessfully received behavioral treatment directed at modifying their sexual preferences.

According to police reports and other historical data, 14 of these subjects had had previous sexual contact with girls, 4 with both boys and girls, and 7 with boys alone. Child molesters who had victimized male children (hereinafter referred to as homosexual child molesters) were more likely to be single and to report a lot of homosexual experience.

Victim damage scores were determined for each subject’s most seriously injured child victim, following Quinsey and Chaplin (1982), for the 21 subjects for whom these data were available. The average victim damage score was 2.52 (sd = 2.20). Interrater agreement on this scale has been very good (Quinsey & Chaplin, 1982). This scale was analyzed both in continuous form and as a dichotomy (victim spent at least one night in hospital [a rating of 5] or killed [6], or killed and mutilated [7] as opposed to lesser [2-3] or no [1] injury). Avery-Clark and Laws (1984) dangerousness dichotomy was also scored from the patient’s history (N = 23).

In total, 14 comparison subjects were also tested. Of these, 8 were men recruited from the local community. Their average age was 24.6 years (sd = 4.60) and they had completed an average of 12.0 (sd = 1.31) years of school; half were unemployed. None reported having been convicted for any crime. The remaining 6 subjects were Oak Ridge patients who had no history of any sort of sex offense. These control patients averaged 31.0 (sd = 5.1) years of age at the time of testing and had completed an average of 10.8 (sd = 2.4) years of education. There were 2 who were diagnosed as personality disordered and 4 as psychotic. In total, 1 patient was married and all the rest were single. All patients reported exclusively heterosexual experience.

There was no significant difference between the comparison
subjects and the child molesters in age ($t[1, 37] = 1.39$) but the comparison subjects were significantly better educated ($t[1, 37] = 3.47$).

**Apparatus**

Subjects were seated in a reclining chair located in a sound-attenuated and electrically shielded room equipped with a one-way mirror and intercom. Skin resistance was recorded from the fingers of the left hand but was not scored. Penile responses were measured using a mercury in rubber strain gauge that the subject fitted on the shaft of his penis. The strain gauge was periodically calibrated and the relationship between circumference and deflection was found to be linear within the working range of the gauge. The leads from the gauge were connected to a Parks Electronics Model 270 Plethysmograph. Penile responses were recorded at two levels of amplification on a Beckman R511A Dynograph and were monitored on a digital voltmeter to prevent clipping. Auditory stimuli were presented by a programmable tape recorder through a speaker in the subject’s chamber. All programming and recording equipment was located outside the subject’s chamber.

**Instructions**

After the apparatus had been explained, subjects were told that a tape would be played that described a series of interactions between people and that some of the stories depicted violence between adults and children. Subjects were instructed “to listen carefully to the stories and imagine you are the person telling them.” Subjects were debriefed extensively at the end of the recording session; the inappropriate, unethical, and (sometimes) unusual nature of the depicted acts was stressed. Any questions and concerns that subjects raised in response to a standard series of queries were addressed.

**Stimuli and Procedure**

Three stimuli served as warm ups (2 neutral interactions and 1 sexual interaction with a consenting adult female). There were 22 additional stimuli that were used in the study. These stimuli were of 11 categories with two stimuli per category. Half the subjects in each group received 1 of 2 orders of presentation that were determined randomly with the restriction that two stimuli from the same category
could not be adjacent. Each story involved a male actor who described a story from his "own experience" in the first person, past tense. There were two neutral categories (one story depicting a nonsexual interaction with a child female and one with a child male) and there were five categories involving female target persons: (a) consenting sex, adult female; (b) sex with an 8- or a 10-year-old girl with no violence and passive resistance; (c) coercive sex with an 8- or with a 10-year-old girl using threats and physical force; (d) violent sex with a girl, involving the gratuitous infliction of physical injury, and (e) nonsexual violence involving an 8- or a 10-year-old girl. The violence depicted in these stimuli was extreme; for example, choking into unconsciousness. There were five parallel categories involving male target persons.

Each story was 200 words long and lasted approximately 100 seconds. In the following order, 15 words set the scene and established the target person's (i.e., the victim or partner's) age and sex, 15 words described the target person, 50 words described the initial interaction with the target person during which the intention of the actor was made clear, 30 words described physical contact, 20 words described the target person's physical (10 words) and verbal responses, and the last 50 words described continuing physical contact and the target person's verbal response (10 words).

The largest penile response in the 2 to 120 s interval following story onset was recorded and the difference between this response and the polygraph reading at 0 s was obtained. There was a 30 s period between the end of the previous recording interval and the start of the next story (or longer, if the subject did not return to baseline).

Treatment of the Data

Each subject's data were analyzed in terms of raw scores (mm of penile circumference change) and z scores. The z scores for each subject were based on his 22 responses to the individual stories. For each subject, both raw and z scores were averaged within each stimulus category before further analysis. Difference scores were also calculated for z scores (following Quinsey et al., 1984) to reflect certain aspects of the subject's relative sexual preference. The 6 difference scores reflecting an interest in aggression involved subtracting, in turn, coercive sex, violent sex, and nonsexual violence from the minimally coercive child sex story for the male and female
series separately. In addition, two male and female age preference scores were obtained by subtracting the response to the male or female minimally coercive story from the corresponding adult consenting sex story.

RESULTS

Sexual Preference Description

The primary results are shown in Figures 1, 2, and 3. As can be seen in the figures, there was clear differentiation of the child molesters from the normals in both the raw and z scores. The normal subjects (nonpatient volunteers and nonsex offender patients) responded exclusively to the stories describing consenting sex with adult females. The raw scores show that the child molesters’ responses to child stories were high both in relation to their own responses to the adult female category but also to the normal subjects’ responses to the child categories. Figure 3 shows the results in more detail. The first result of importance is the exquisite correspondence between the community and hospital control groups’ data. The second feature of interest is the high degree of bisexuality among the child molester subgroups: All child molesters, regardless of the gender of their previous victims, showed, on average, substantial interest in children of both genders. There is a particularly close correspondence between the data from the child molesters with female victims only and those with both male and female victims.

Analyses of variance supported the visual inspection of the figures. Overall analyses of both the raw and z score data are summarized in Table 1. These analyses are based on all of the normals and all of the child molesters who had at least one female victim (i.e., they exclude homosexual child molesters because there were not enough of them for separate analysis and because the comparison subjects are better controls for the heterosexual child molesters) and do not include 5 subjects for whom (by error) there was no male consenting sexual scene presented. These analyses of variance took the form of a one between-subjects variable (child molester-normal) and two within-subjects variables (gender of target person and type of activity) design. All effects were significant; as usual, the F ratios based on z scores were considerably larger than those based on raw scores.
Figure 1: Sexual Preference Raw Scores for Normals and Child Molesters with at Least One Female Victim as a Function of Stimulus Category
Figure 2: Sexual Preference Z Scores for Normals and Child Molesters with at Least One Female Victim as a Function of Stimulus Category
Figure 3: Sexual Preference Z Scores for Child Molestes with Different Histories of Victim Choice and Both Control Groups by Stimulus Category
TABLE 1
Principal Analyses of Variance

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Raw d.f.</th>
<th>Raw F</th>
<th>Raw p &lt;</th>
<th>Z Score d.f.</th>
<th>Z Score F</th>
<th>Z Score p &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (A)</td>
<td>1/26</td>
<td>6.40</td>
<td>.025</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Victim/Partner Gender (B)</td>
<td>1/26</td>
<td>11.00</td>
<td>.005</td>
<td>32.57</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>1/26</td>
<td>&lt; 1</td>
<td>NS</td>
<td>&lt; 1</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Story Category (C)</td>
<td>5/130</td>
<td>14.57</td>
<td>.001</td>
<td>62.12</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>AC</td>
<td>5/130</td>
<td>8.71</td>
<td>.001</td>
<td>42.19</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>5/130</td>
<td>5.72</td>
<td>.001</td>
<td>22.85</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>ABC</td>
<td>5/130</td>
<td>4.51</td>
<td>.001</td>
<td>18.12</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>

Decomposition of the interactions in the z score data with planned contrasts indicated, not surprisingly, that the heterosexual or bisexual child molesters responded more to the passive resistance child female sexual category than the adult female consenting sexual category ($F[1, 130] = 25.05$, $p < .001$). These child molesters’ responses to the passive resistance child female category did not differ significantly from the child female categories involving force or sexual violence (both $p$’s $< .20$) but did differ substantially from the child female nonsexual violence category ($F[1, 130] = 8.34$, $p < .01$).

The heterosexual or bisexual child molesters responded only slightly more to the passive resistance stories involving female children than male children and this difference was not significant ($F[1, 26] = 3.11$, $p < .10$). They also exhibited substantial absolute interest in the passive resistance child male category. This category was significantly different from the neutral male category ($F[1, 130] = 77.71$, $p < .001$).

Difference scores reflecting relative age preferences showed, as expected, that child molesters with at least one female victim were more interested in children than in adults as compared to normals. Child molesters’ mean responses to the consenting adult female category were significantly lower than their own mean responses to the passive resistance child female category for the raw ($t[26] = 4.83$, $p < .001$) and z scores ($t[26] = 9.41$, $p < .001$).

An ad hoc comparison of the largest mean z score response to the child categories (passive resistance female) with the neutral female category among the normal subjects did not meet Scheffé’s adjusted criterion for significance. Thus normal subjects showed no statistically significant interest in any of the child stimuli.
### TABLE 2
Correlations Between Measures of Previous Aggressiveness and Penile Tumescence Difference Scores Among Child Molesters

<table>
<thead>
<tr>
<th>Z Difference Score</th>
<th>Victim Damage Score ((N = 21))</th>
<th>Dichotomous Victim Damage ((N = 21))</th>
<th>Avery-Clark &amp; Laws Dichotomy ((N = 23))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult, consenting—child, passive</td>
<td>-.277</td>
<td>-.267</td>
<td>-.371</td>
</tr>
<tr>
<td>Adult, consenting—child, coercive</td>
<td>-.581**</td>
<td>-.500**</td>
<td>-.518*</td>
</tr>
<tr>
<td>Adult, consenting—child, violent</td>
<td>-.373</td>
<td>-.255</td>
<td>-.413</td>
</tr>
<tr>
<td>Adult, consenting—child, nonsexual violence</td>
<td>-.316</td>
<td>-.178</td>
<td>-.398</td>
</tr>
<tr>
<td>Child, passive—child, coercive</td>
<td>-.280</td>
<td>-.285</td>
<td>-.128</td>
</tr>
<tr>
<td>Child, passive—child, violent</td>
<td>-.031</td>
<td>-.020</td>
<td>.033</td>
</tr>
<tr>
<td>Child, passive—child, nonsexual violence</td>
<td>-.328</td>
<td>-.269</td>
<td>-.239</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01, 2-tailed.

### Sexual Preference and Victim Damage

The penile response data to the stories involving coercion and violence cannot be interpreted without relating them to the amount of violence displayed by the offenders in the past. Because there was no discrimination among any of the stories involving sex with female children, these data could be interpreted as simply meaning that child molesters respond to descriptions of sex with children regardless of its context (i.e., that either their responses are not inhibited by violence or coercion or that they attend only to the sexual aspects of the story).

Table 2 shows the correlations between different measures of sexually violent histories and different methods of quantifying sadistic sexual interest. The data in Table 2 are based upon the preferred adult and the preferred gender of each subject as determined by penile responses to the consenting adult and passive child categories. Measures of sadistic history based on Avery-Clark and Laws’s dangerous-not dangerous dichotomy or simply on amount of victim injury yielded very similar results (these measures correlated .80 with each other). The most salient aspect of the table is that there is
the expected pattern of negative correlations; however, only the correlations among the difference between adult consenting and child coercive and victim damage are significant with this small N.

There are still, however, questions about the specificity of the relation between an interest in sexual violence with children as measured phallometrically and victim damage scores. We had predicted that the most sensitive measure of preference for sexual violence with children should be the difference between the least coercive sexual interactions with children and sexual violence with children. Instead, the difference between the amount of response to consenting sex with adults and coercive (but not violent) sex with children was the most highly related to victim damage; that is, compared to others, subjects who had injured their victims showed little sexual interest in adults and a lot of interest in coercive sex with children. It appears, therefore, at least descriptively, that age preferences are linked in some way to a history of sexual violence with children. This conclusion is supported by the correlations between the simple stimulus category 2 score means and victim damage. The highest correlation, -.53, involved consenting sex with an adult (of the preferred gender); the next largest, and only positive, correlation was .31, involving coercive sex with children of the preferred gender.

DISCUSSION

In brief summary, as assessed by phallometric testing, child molesters prefer stories involving sex with children to sex with adults, show marked interest in children of both genders regardless of their history of victim gender choice, do not respond to depictions of nonsexual violence involving children, respond to stories describing sex with children whether it is passive, coercive, or violent, and respond relatively more to coercive sex with children if they have physically injured their victims in the past.

These data provide a strong replication of Avery-Clark and Laws's finding because the stimuli and many other details of the experiment (such as shorter stimulus durations) were different. An important difference, however, is that our data indicate that victim injury is more closely related to the difference between consenting sex with an adult female and coercive sex with children rather than (as in Avery-Clark & Laws, 1984) a difference between "consenting" and coercive sex with children. It is, of course, possible that had Avery-Clark and
Laws included descriptions of consenting sex with women that they would have found even larger correlations than they did.

In the present study, heterosexual or bisexual child molesters showed a high degree of responsiveness to any sexual story involving children. Although the mean penile responses declined as the amount of force and violence increased, these decreases were not significant. These results are similar to those recently reported for 40 heterosexual nonfamilial child molesters by Marshall, Barbaree, and Christopher (1986), although in that study the decline in responsiveness with increasing force was highly significant. It is, however, possible that these results are simply a consequence of sampling differences (maximum security hospital versus outpatient clinic); the aggressiveness of these two samples was, unfortunately, measured in different ways. Differences in the stimuli employed in the two studies constitute another possible explanation.

There is another very interesting parallel between the present study and that of Marshall et al. Those investigators found that a ratio of "consenting" child sex to forced sex correlated .40 with degree of force in the offense history (similar to Avery-Clark & Laws's finding). A ratio formed on the basis of responses to slide stimuli that reflected relative age preference correlated .32 with degree of force in the offense history. Although the magnitude of the correlations from the present study (see Table 2) are somewhat different, both the present results and those of Marshall et al. indicate that inappropriate sexual age preference and interest in coercive sex with children are positively related to previous victim injury. Because of the many differences in procedure between the two studies, this degree of correspondence is most welcome.

Taken together with the studies reported by Abel et al. (1981), Avery-Clark and Laws (1984), and Marshall et al. (1986), the present results strongly indicate that phallometric examinations of child molesters should not be limited to determining age preference but should also include the measurement of sadistic sexual interest. Sadistic sexual interests are a very important target for intervention as they may be related to the future commission of the types of sexual misbehaviors we most wish to prevent.

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