



VIEWING TIME AS A MEASURE OF SEXUAL INTEREST AMONG CHILD MOLESTERS AND NORMAL HETEROSEXUAL MEN

GRANT T. HARRIS*¹, MARNIE E. RICE¹, VERNON L. QUINSEY² and
TERRY C. CHAPLIN¹

¹Mental Health Centre, 500 Church St, Penetanguishene, Ontario, Canada L9M 1G3 and ²Queen's University, Kingston, Ontario, Canada

(Received 10 May 1995; in revised form 3 October 1995)

Summary—Although phallometric assessment is the best scientific method for measuring male sexual interest, it is intrusive and highly technical. We examined viewing time as an unobtrusive and technically simple measure of sexual preference and compared the discrimination obtained by viewing time measures with that obtained by phallometric measures. Slides of nude males and females of various ages were shown to child molesters and normal men while their viewing times were recorded. Subjects then rated the sexual attractiveness of the stimulus persons. Phallometric assessments using the same stimulus categories were also given to some of the Ss. Deviance scores calculated from the viewing time data significantly discriminated between the child molesters and the normals, although the discrimination achieved was less than that obtained using phallometric measures. Sexual attractiveness ratings did not differentiate the two groups. Among the normal men, viewing time and sexual attractiveness ratings were highly correlated; but the correlation was much lower for child molesters. Viewing time shows considerable promise as an unobtrusive measure of male sexual interest.

INTRODUCTION

Phallometric assessment has become the most scientifically accepted method of measuring male sexual interests (Quinsey, 1988; Quinsey & Earls, 1990). The ability of phallometric tests of age preferences to discriminate child molesters from other men is well established (Harris, Rice, Quinsey, Chaplin & Earls, 1992). Some studies have shown that when appropriate stimuli and scoring methods are used, there is little overlap between the responses of the two groups (Chaplin, Rice & Harris, 1995; Harris *et al.*, 1992). Sexual interest in children, as measured by phallometric tests, has also been shown to predict sexual and violent recidivism among child molesters (Barbaree & Marshall, 1988; Malcolm, Andrews & Quinsey, 1993; Rice, Quinsey & Harris, 1991; Quinsey, Rice & Harris, 1995).

A major problem with phallometric testing, however, is intrusiveness. A device must be attached to the penis to monitor changes in size. Phallometric tests require specialized equipment and considerable skill from the examiner. Despite its reliability and validity, it is unlikely that such a specialized and intrusive test could be widely used in screening men who apply to work with children. Also, because of its intrusiveness, the use of phallometric testing with children and adolescents raises many ethical questions. Although some investigators have used phallometric tests with adolescent sex offenders (Becker, Kaplan & Tenke, 1992), there are no normative data about the sexual preferences of children or adolescents. A less intrusive measure would be very useful for studying the sexual interests of adults, adolescents, and children.

Another measure of sexual interest is self-reported sexual arousal or sexual attraction. Among adult male nonoffenders, there are close correspondences among sexual behavior, self-reported sexual interest, and phallometrically-determined sexual interest (Quinsey, Steinman, Bergerson & Holmes, 1975). However, self-reported sexual interests bear little relationship to phallometrically determined preferences among child molesters, whose self-reported sexual interests are similar to

*Author for correspondence: Research Department, Mental Health Centre, 500 Church Street, Penetanguishene, Ontario, Canada L9M 1G3.

those of normal men (Quinsey *et al.*, 1975). Among men who have reason to dissimulate, then, self-reported sexual interest is a poor measure of sexual interest. Also, among children and adolescents, who are shy about talking to adults about sexual topics, very concerned about appearing to be normal, and may not know what is meant by the term 'sexual arousal', self-report measures have other methodological and ethical problems.

Another possible measure of sexual interest is viewing time. Rosenzweig (1942) found that male patients who were rated by staff as very interested in sexual topics and sexual behavior looked at sexual stimuli longer than patients rated low in sexual behavior. In other studies (Brown, Amoroso, Ware, Pruesse & Pilkey, 1973; Love, Sloan & Schmidt, 1976; Ware, Brown, Amoroso, Pilkey & Pruesse, 1972), male college students spent longer looking at slides they rated as highly pornographic than less pornographic slides. Zamansky (1956) found that homosexual males looked longer at male nudes than female nudes, whereas the reverse was true for heterosexual males. Finally, in other studies (Lang, Searles, Lauerman & Adesso, 1980; Quinsey, Rice, Harris & Reid, 1993), viewing time was significantly correlated with male college students' ratings of sexual arousal, sexual stimulation, and sexual attractiveness.

We examined viewing time, sexual attractiveness ratings, and phallometric measures. Using slides of males and females of different ages as stimuli, we examined the ability of viewing time measures to discriminate between child molesters and normal heterosexual men. We also examined the relationship among viewing time, sexual attractiveness and phallometric measures.

METHOD

Subjects

There were two groups of male Ss: 26 child molesters and 25 paid volunteers from the local community. The child molesters participated as part of a clinical assessment of their sexual preferences. (The viewing time task occurred first, followed by as many as three separate phallometric tests of sexual age and gender preferences.) Of the child molesters, 16 were outpatients referred by probation and parole authorities in preparation for community supervision, 6 were referred by other community agencies or clinicians, 2 were psychiatric inpatients undergoing a pre-trial evaluation in a minimum secure setting, 1 was a minimum security prison inmate and 1 was a self-referral. Twenty-one of the child molesters had been charged with or convicted of a sexual offense against at least one person who was under 14 yr old and at least 5 yr younger than the offender. Three child molesters admitted such offenses even though they had not (or not yet) been charged, and for the remaining 2 there was convincing documentation (i.e. eye witness statements) attesting to their having committed such offenses. Sixteen of the child molesters had offended only against girls, 6 only against boys and 4 against both. Six of the offenders had also committed sexual offenses against adult women. Fifteen of the offenders had committed offenses against children in their own families, but only 2 of these had offended exclusively against first degree biological kin.

Community volunteers were recruited with newspaper advertisements asking for volunteers for a research study at a psychiatric hospital. All reported never having been arrested, and said they were heterosexual. They denied any adult sexual interest in or experience with children. Volunteers were paid \$20.00. Child molesters and community volunteers were similar in age, 41.3 (SD = 16.0) vs 36.2 (SD = 6.77), respectively, $t(49) = 1.47$, $P > 0.10$. However, they differed in years of education, 9.44 (SD = 4.06) vs 12.8 (SD = 3.89), respectively, $t(49) = 3.01$, $P < 0.01$. Ten community volunteers participated in the viewing time and rating task, and 15 underwent phallometric testing.

Stimuli

The viewing time and rating stimuli were 70 photographic slides, forming 7 categories: (1) neutral (landscapes); (2) male children between the ages of 5 and 8; (3) female children between 5 and 8; (4) male pubescents; (5) female pubescents; (6) male adults; and (7) female adults. All child slides depicted a person at the first of Tanner's (1971) stages (i.e. no development of primary or secondary sex characteristics). All pubescent slides were at the third of Tanner's stages (e.g. incomplete breast

development for girls), and all adult slides at the last of Tanner's five stages (i.e. pubic hair and complete development of primary and secondary sex characteristics). All nonneutral slides showed one nude person with the genital area visible. Approximately a third of the slides were in black and white and the remainder were in colour. The proportion that were in colour and the proportion of the frame devoted to the person were unconfounded with stimulus category. The slides were arranged into a single stratified random order. A short series of 20 additional slides from the same age and gender categories depicting clothed and nude persons was used for warmup and practice; data from these stimuli are not reported.

Procedure: viewing time

On arrival at the laboratory the *S* was told that we wanted to evaluate his sexual interests. He was told that he would see a large number of photographs of nude people of all ages and both genders. He was given the opportunity to ask questions, told that he could withdraw at any point, and then invited to sign a consent form. No child molester or community volunteer expressed any distress at the stimuli and none asked to withdraw. Next, a pulse monitor was placed on the *S*'s left index finger so he could hear tones from the apparatus. The tone was then turned off. The *S* was told that his pulse would be monitored by computer while he viewed the slides—pulse was monitored but not recorded. These instructions were intended to define the test as sexual and decrease the likelihood that *S*s would deliberately try to alter their viewing times. The *S* sat in a comfortable arm chair with a board across his lap. The board held two buttons: one advanced the slide and the other illuminated it. The *S* practiced using the buttons and was then instructed to use the buttons to examine the slides. Subjects were asked to pay careful attention to each slide because questions would be asked later. The researcher then lowered the blind covering the window between the *S*'s chamber and the apparatus room 'for privacy', and then left. After the *S* viewed all 70 slides, the tray was reset and the *S* was asked to review the slides, making a rating of how sexually attractive he found each stimulus person. Ratings were done on a scale of 1 (not at all attractive) to 10 (extremely sexually attractive). Throughout the entire procedure, the computer unobtrusively recorded slide illumination time for each trial. After the end of the second review, *S*s were debriefed. None spontaneously reported that viewing time was recorded. When told about the unobtrusive measure, a few said something such as, "I thought that was what was going on". The data from *S*s who made such statements were compared to the others but no differences were apparent.

Procedure: phallometric testing

The phallometric test procedures have been fully described elsewhere (Quinsey & Chaplin, 1988). Briefly, the *S* sat in a comfortable chair in a special testing room. Photographs were presented with a slide projector. While stimuli were presented, *S*'s penile circumference was measured with a mercury-in-silastic strain gauge connected to a Parks Model 270 plethysmograph. Calibrations ensured that plethysmograph output was a linear function of circumference. The recorded response was the maximum circumference attained (compared to pre-trial baseline) within 120 sec of stimulus onset. There were 2 stimuli in each of 7 categories: neutral, male and female children, male and female adolescents and male and female adults; half were clothed and half were nude. Thirty participants (15 child molesters and 15 community volunteers) received this standard assessment, using visual stimuli only. This procedure is very similar to that described by Quinsey *et al.* (1975). Eleven child molesters received other phallometric assessments because the clinical questions relevant to the cases were somewhat different than those that could be addressed with the standard assessment. To maximize the power of between-group comparisons an equal number of community volunteers ($n = 15$) were tested with this standard (slides only) phallometric assessment.

Treatment of the data

Viewing times were the mean within-category slide illumination times (in sec) collected during the first review of the 70 stimuli. Mean within-category ratings of sexual attractiveness were also calculated for each *S*. Also following our findings with phallometric testing (Harris *et al.*, 1992), a deviance index for viewing time was computed for each *S* by subtracting his longest mean viewing time for a child or pubescent category from his longest mean viewing time for an adult category.

The comparisons between phallometric measures and viewing time employed the 15 child molesters and 15 community volunteers who received the slides-only assessment.

RESULTS

The mean within-category illumination times, phallometric responses, and sexual attractiveness ratings are shown in Fig. 1. Clearly, nonoffenders' ratings, viewing times profiles and phallometric responses were very similar while child molesters' ratings of sexual attractiveness did not closely correspond with either their phallometric responses or unobtrusively recorded viewing times. The viewing times were subjected to an analysis of variance where stimulus category was a within-*S*s factor and group was a between-*S*s factor. The ANOVA yielded a significant effect for group, $F(1,34) = 4.56, P < 0.05$, indicating that the nonoffenders had longer viewing times overall. Also significant were the effects for stimulus category, $F(5,170) = 20.60, P < 0.0001$ and the group-by-category interaction, $F(5,170) = 11.34, P < 0.0001$ indicating different response profiles for the two *S* groups.

Unfortunately, not all child molester *S*s could provide sexual attractiveness ratings—7 were illiterate or otherwise unable to complete the task. Therefore, correlations between ratings and viewing time were computed for *S*s who completed both tasks. The correlations between ratings and viewing time were 0.46, $P < 0.001$ and 0.91, $P < 0.001$, for the child molesters and nonoffenders, respectively (these two correlations, themselves, differed, $P < 0.01$). There was also a statistically significant difference between the two *S* groups on the deviance index for viewing times: child molester' mean = 0.14 (SD = 0.97) vs nonoffender's mean = 1.26 (SD = 1.47), $t(34) = 2.69, P < 0.01$. These group differences correspond to effect sizes of 1.0 (Cohen's *d*: Cohen, 1969) and 0.80 (common language effect size or CL: McGraw & Wong, 1992). Calculating a deviance index based on sexual attractiveness ratings yielded no difference between the groups; means were 3.41 (SD = 2.94) vs 3.20 (SD = 1.88), for the child molesters and community volunteers, respectively, $t(27) < 1$.

Due to the confounding of behavioral preferences for age and gender in the sexual histories of the volunteers, it was possible that the discrimination was partly an artifact. That is, our child molester sample included some homosexual child molesters while our nonoffender sample was exclusively heterosexual. To ensure that the discrimination on the basis of age was not artifactually enhanced by gender preferences, we repeated our analysis of the deviance index for viewing time using only those child molesters who had only girl victims. Expressed as the correlation between

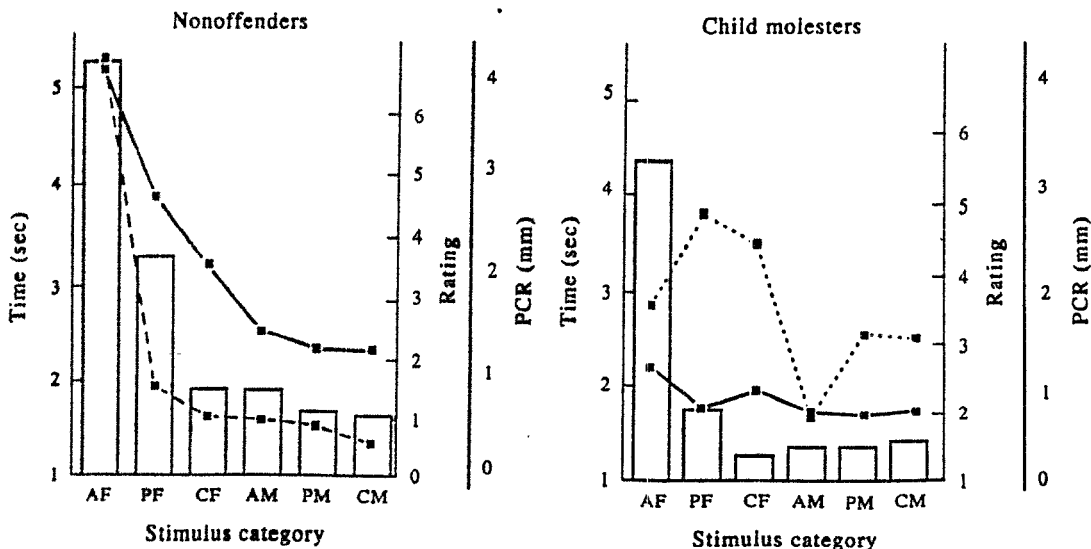


Fig. 1. Mean viewing times (solid lines), penile circumference responses (PCR: broken lines), and sexual attractiveness ratings (bars) for child molesters (right panel) and nonoffenders (left panel) as a function of three stimulus age categories (A—adult, P—pubescent, C—child) and two stimulus sex categories (F—female, M—male).

the deviance differential for viewing time and group membership, discrimination increased from $r(33) = 0.43$, $P < 0.01$ to $r(26) = 0.60$, $P < 0.001$.

Viewing time and phallometric responses

As described above, 15 of the child molesters and 15 volunteers received a standard phallometric assessment using the same stimulus categories used in constructing the set for viewing time. Figure 1 shows that these two groups responded very differently to the phallometric testing procedure. To compute the z -score phallometric deviance differential, a single score was calculated for each S : his largest mean phallometric response (in z -scores) to a child stimulus category subtracted from his largest mean phallometric response to an adult category. The two groups differed substantially on this measure, -0.47 ($SD = 1.12$) vs 1.88 ($SD = 1.14$), for the child molesters and volunteers, respectively, $t(28) = 5.67$, $P < 0.0001$. This difference corresponded to a Cohen's d of 2.1 and a CL of 0.93. Using a cut score of 1.0 only 3 S s (1 child molester and 2 community volunteers) would have been misclassified using this phallometric deviance differential.

Overall, S s' mean phallometric responses were typical of the pattern usually observed among child molesters tested in our laboratory, in-as-much as the average mean response to both male and female child stimuli exceeded responses to the corresponding adult stimuli (Harris *et al.*, 1992). This pattern was also apparent in the viewing time data of those who had offended only against girls (not shown in the figure); they looked relatively longer at the child females than at all other stimuli, mean deviance differential for viewing times was -0.09 ($SD = 0.58$).

DISCUSSION

Using a deviance index calculated from viewing times in a manner analogous to that which we have proposed for phallometric data (Harris *et al.*, 1992), we obtained good discrimination between child molesters and normal men. The obtained effect size ($d = 1.0$) is large by conventional standards (Cohen, 1969). The discriminability reported here approaches that reported for some phallometric tests (Abel, Lawry, Karlstrom, Osborn & Gillespie, 1994; Freund & Watson, 1991). Compared to normal men, child molesters looked at slides of children relatively longer than they looked at slides of adults. Ratings of sexual attractiveness did not discriminate the groups. Whereas sexual attractiveness ratings and viewing times were highly correlated for normal men, the correlations were much lower for child molesters. Although the between-group differences obtained in the viewing time task were substantial, the discrimination between groups was lower than that obtained with phallometric measures using similar stimuli.

One might suppose that sex offenders assessed in a maximum security institution are an especially deviant population. Such an assertion cannot be easily verified (Harris *et al.*, 1992). However, we note that although S s in most other studies at our institution have been maximum security setting inpatients, none of the present S s came from that population. They were from minimum security correctional or psychiatric settings or resided in our community. The majority had offended against children in their own families (although few had offended only against kin).

Among child molesters, the viewing time measure did not yield as much variation among stimulus categories as did phallometric testing. This may be because the child molesters viewed the slides quickly, spending an average of 1.87 ($SD = 0.88$) sec per slide compared to 3.25 ($SD = 3.04$) for the normals. These short viewing times may indicate defensiveness on the part of the child molesters. Instructions or other manipulations that slow the S s down might yield greater among-category variability in the child molesters and may improve between-group discrimination.

Would discrimination for screening purposes or for studying children and adolescents be improved by combining measures? Abel and colleagues (Abel *et al.*, 1994) reported on an unobtrusive measure (in combination with other measures) in discriminating between child molesters and nonoffenders. Elsewhere (Chaplin *et al.*, 1995), we reported reliable differences between child molesters and nonoffenders on a questionnaire with such items as, "Who would be more embarrassed by having to appear in court over an incident of alleged child sexual abuse; the child victim or the man accused?" Some investigators have reported that validity ('fake good') scales from standard personality tests discriminate between child abusers who admit their offenses and those who do not (Lanyon, Donnenbaum & Brown, 1991). A composite measure, including

viewing time, sexual attractiveness ratings, and questionnaire measures might improve group discrimination for screening. Similarly, perhaps combining viewing time with ratings of physical (as opposed to sexual) attractiveness would yield even better measures of sexual interest for use in studies of adolescents and children (Quinsey *et al.*, 1993).

In summary, viewing time can serve as an unobtrusive measure of males' sexual interests; the between-groups effect size obtained in the present study was large. The close correspondence among phallometric, self-report and viewing time measures among the community volunteers in this study and in other nonclinical populations (George & Marlatt, 1986; Quinsey *et al.*, 1993; Quinsey, Ketsetzis, Earls & Karamanokian, 1996) supports the development of viewing time measures of sexual preference in epidemiological studies. The present results also show the promise of viewing time measures for screening men to work with vulnerable children.

Acknowledgement—Thanks are due to D. Gardiner for help in gathering the data.

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