A Comparison of the *Abel Assessment for Sexual Interest* and Penile Plethysmography in an Outpatient Sample of Sexual Offenders

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**ABSTRACT**

The assessment of sexual arousal and sexual interest patterns have become significant elements in the detection and treatment of sexual disorders. This study investigated whether there was a relationship between sexual interest (utilizing viewing time) and sexual arousal (utilizing plethysmography) in a clinical sample of sexual offenders with diagnosed pedophilic interests. Thirty nine participants from an outpatient sexual offender treatment program underwent both penile plethysmography and *Abel Assessment for Sexual Interest* procedures. Results indicated that both the *Abel Assessment for Sexual Interest* and the penile plethysmograph were able to identify diagnosed pedophiles to a high degree. Overall, the plethysmograph was able to classify correctly 64 percent of the participants as true positives, while the *Abel Assessment for Sexual Interests* was able to classify 79 percent of those participating in this study as true positives. The present study goes beyond other analyses to date, however, in providing examination of the conditions in which accuracy in predicting true positives can be significantly enhanced. When a formula is applied to the Abel Assessment graphs to detect for reflexive responders, i.e., those who attempt to employ dissimulation techniques in the Abel assessment protocol, predictive accuracy is affected. The *Abel Assessment for Sexual Interest* was able to classify correctly almost all of the non-reflexive responders in the clinical sample, raising the aggregate percentage of 79 percent true positives to 96 percent. Likewise with plethysmography, non-reflexive responders on the Abel assessment protocol were classified correctly 68 percent of the time, in comparison to 64 percent in the absence of such information. Implications of these findings to psychophysiological assessment of sexual offenders are discussed in context of both viewing time and phallometric approaches.

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In clinical populations, the meta-analysis of Hanson and Bussiere (1998) clearly implicates the importance of phallometric data because deviant sexual arousal measured through penile plethysmography was the only variable in their analysis with at least a modest (0.32) correlation with sexual recidivism. Abel et al. (1998) describe a non-phallometric assessment technique based upon viewing time they call the Abel Assessment for Sexual Interest. According to Abel et al. the Abel Assessment for Sexual Interest has the ability to accurately predict sexual interest that is comparable to results typically achieved via plethysmography. They conclude: “In sum, visual reaction time and plethysmography were similar in their ability to predict categorizations” (1998, p. 92). The purpose of this study is to investigate and validate whether there is a relationship between sexual interest (utilizing viewing time) and sexual arousal (utilizing plethysmography) in a clinical sample of sexual offenders. The present investigation will provide for an independent analysis of the Abel Assessment for Sexual Interest and its relationship with plethysmography in the classification of sexual offenders with pedophilic interests.

Sexual Arousal and Penile Plethysmography

The assessment of male sexual arousal patterns was first investigated by Freund (1963), using a device which recorded changes in penile volume, which was termed phallometry. In this study, Freund was able to classify correctly subjects according to their stated sexual preferences by measuring changes in penile volume in response to stimuli depicting male and female adults and children. In the years that followed researchers developed and tested other types of penile circumference gauges in a general procedure now termed plethysmography (Bancroft, Jones, & Pullan, 1966; Barlow, Becker, Leitenberg, & Agras, 1970; Fisher, Gross, & Zuch, 1965). The circumferential measures such as mercury in rubber or silicone gauges are currently the most commonly used due to practical concerns—they are easier to use and apply and they are more sturdy and reliable than volumetric devices (Howes, 1995).

In a review of all of the physiological measures in use at the time (e.g., skin conductance, heart rate, blood pressure, pupillary responses, and temperature), Zuckerman (1971) concluded that penile erection measures were the most sensitive measures of sexual arousal available. Therefore, research conducted over the past forty years has generally supported the conclusion that the plethysmograph is both a reliable and valid means of assessing a male's sexual arousal patterns (Howes, 1995; Maletzky, 1995).
Sexual Arousal and Sexual Interest

Plethysmography measures sexual arousal because the dependent variable is a measure of penile tumescence. Researchers have commonly used the terms sexual interest or sexual preference as substitutes for the term sexual arousal in studies employing plethysmography. For example, Harris and Rice (1996) define plethysmography as a measure of the male erectile response that translates into a scientific measure of men’s sexual preferences. Abel et al. (1998) in a similar fashion define sexual interest as the measure traditionally observed through employing plethysmography. Seto and Lalumiere (2001) specifically use the term sexual interest as the variable being measured in plethysmography, as do Laws et al. (2000).

It is clear from even a cursory review of the scientific literature that the terms sexual arousal and sexual interest are being used interchangeably in explaining what plethysmography measures. As a direct physiological measure of penile tumescence, plethysmography can be said to measure sexual arousal, the phallometric definition, or sexual interest, which can also serve a more general term potentially incorporating affective components or cognitive elements into the analysis. If a person is sexually interested in female adults, for example, we may presume a sexual arousal component of that interest amenable to plethysmographic assessment, but we may also be analyzing the cognitive or affective components that participate in the behavior of approaching and engaging female adults in a variety of environmental contexts. Sexual interest may also be measured in ways that go beyond phallometric assessment. For example, direct observation measures of time spent attending to a stimulus, sexual fantasy behavior, self-report, and other techniques may also address the measurement of sexual interest, as may different physiologically based techniques. One physiology-based technique advanced as a method to measure sexual interest is viewing time. Long before Freund published his findings using phallicometric measures, Rosenzweig (1942) reported a strong relationship between ratings of psychiatric staff members of patients’ interest in sex and the amount of time patients viewed slides depicting sexual versus non-sexual content. Harris et al. (1996) examined viewing time as an unobtrusive and straightforward measure of sexual interest, and found that viewing time correlated significantly with plethysmography measures. Abel et al. (1998) also reported favorable results utilizing viewing time to distinguish among different categories of pedophilic interest when compared with plethysmography. Abel et al.’s research led to the development of the Abel Assessment for Sexual Interest as a viewing time measure that was investigated in this study of sexual offenders in an outpatient setting.

Abel Assessment for Sexual Interest

Abel et al. (1990) compared the viewing time of 151 heterosexual and homosexual males viewing 80 slides depicting males and females of various ages. They found that viewing times to slides depicting the patient’s preferred adult gender were significantly greater than viewing times to the non-preferred gender. Abel et al. (1994) also compared the viewing times of 101 normal, non-child molesting males with the viewing times of 30 molesters of adolescent boys, 25 molesters of boys under 14 years of age, 57 molesters of adolescent girls and 873 molesters of girls under 14. One hundred sixty slides were presented, half depicting nudes and half depicting non-nudes in five stimulus categories: adult females, adult males, girls 8-10 years of age, and boys 8-10 years of age, plus a neutral category (landscapes). All child molesters had admitted their sexual interest in children. The results showed a high sensitivity and specificity in categorizing those interested in adolescent boys, a moderate sensitivity high specificity for those interested in males under 14; and a high sensitivity for those interested in adolescent girls or girls under 14; but a low specificity for those reporting interest in adolescent girls or girls under 14.
Abel et al. conclude that the research to date justifies a direct comparison of viewing time with plethysmography as measures of sexual interest (Abel et al., 1998). The present study is a direct investigation of the relationship of viewing time, utilizing the Abel Assessment for Sexual Interest, to plethysmography in an outpatient sample of male sexual offenders.

**Method**

**Participants**

Sixty three participants associated with a southwestern United States outpatient treatment program were originally selected for inclusion in this study because they had been assessed using both plethysmography and the Abel Assessment for Sexual Interest. Several participants had been administered as many as three plethysmographs and two subjects had been administered two Abel Assessments for Sexual Interest. Seventeen of these original participants were excluded from this study because they did not respond to the sexual stimuli in the plethysmographic evaluation (i.e., tumescence did not achieve at least 10 percent of estimated full erection); several participants were sexual assailters of adult females, and several others were judged by the clinical staff to be non-pedophiles, (i.e., they had assaulted or were judged to be sexually interested in pubertal females or males). Therefore, 39 participants (30 Caucasian, 6 Hispanic, 1 Native American, 1 Asian American and 1 unreported) were included in this study. The mean subject age was 42 (SD=10.5 years), and all participants included in this study had histories of repeated sexual contact with either a male or female 10 years of age or younger. All participants met the diagnostic criteria for pedophilia as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (American Psychiatric Association, 1994) during the time this study was conducted.

**Procedure, Apparatus, and Stimuli**

Each participant in this study was evaluated using a standard assessment procedure that included both penile plethysmography and Abel Assessment for Sexual Interest according to the procedure detailed in the description of the apparatus and stimuli for each assessment procedure.

**Penile Plethysmograph**

Penile response was measured by a mercury-in-rubber strain gauge plethysmograph and Type A strain gauge manufactured by Parks Medical Electronics Inc. (Model 240-A). The plethysmograph was connected to a transducer rack for transformation from analog to digital recordings. Stimuli used for plethysmograph measurement included audiotapes developed by D. R. Laws, in connection with the Association for the Treatment of Sexual Abusers (ATSA). The audio tapes depict consensual heterosexual adult relations, as well as different types of homosexual relations, rape, exhibitionism, and several different types of pedophilic behavior—ranging from fondling the genitals of a child to forced sexual relations and even physical aggression without sexual relations. This audio stimulus set has been shown to sample and discriminate relevant stimuli associated with deviant penile responding (Avery-Clark & Laws, 1984). These audio scripts were supplemented by audiotapes developed by Psychological and Consulting Services at the Arizona State Prison Complex in Tucson, Arizona (Gray, 1999). The estimate of full tumescence from baseline was calibrated at 2.5 centimeters for each participant. Each participant was also asked to produce an erection to approximately the three quarters estimate of full erection and then allowed to return to baseline, which was defined as less than
10% full erection for over three minutes. The plethysmography procedures followed the ethical
guidelines of the Association for the Treatment of Sexual Abusers (1997).

**Abel Assessment for Sexual Interest**

The procedure for conducting the *Abel Assessment for Sexual Interest* is described in detail
elsewhere (Abel et al., 1998). Each participant was instructed that they would be viewing three
trays of slides. The first set is a practice tray of 15 slides, and the other two trays each contain 80
slides for a total of 160 slides. The slide projector is connected to a laptop computer. Each
participant viewed each slide tray two times. When the participant pressed the Return key on the
computer the first slide appeared. The participant was instructed to press the Return key once he
viewed the slide in order to see the next slide. After viewing all 80 slides in a tray, the participant
was instructed to view the same 80 slides in the same order a second time, rating his sexual
interest in each slide on a 7-point Likert-type scale (7 = highly sexually aroused, 1 = highly sexually
disgusted). The same procedure was used for the second tray of 80 slides. The final analysis
provides a relative measure of sexual interests in 22 distinctive areas, including age-appropriate
sexual interests, and deviant interests in variously aged children of both sexes. In addition, the
procedure includes a set of slides that specifically target voyeurism, exhibitionism, fetishism,
aggression, sadomasochism, and violence.

**Results**

**Abel Assessment for Sexual Interest Analysis**

Participant data on the *Abel Assessment for Sexual Interest* were first categorized into two
groups based upon their profile analysis: non-reflexive and reflexive (dissimulator) responders.
The rule to determine whether a participant was a reflexive responder or dissimulator was as
follows: First, on the Abel Assessment graph the participant must have responded on average
with a consistent subjective rating to all classes of stimuli that were not adolescent or adult males
and females (depending on their sexual orientation towards males/females). For example, if the
participant was a heterosexual male, to be classified as a reflexive responder, he might on average
score a subjective rating of one for all the non-adolescent, non-adult stimulus categories, as well
as a one for the adolescent and adult male categories, and score any other number on average for the
adolescent and adult female stimulus categories. Second, for each participant the difference
between the lowest standard score on the Abel Assessment graph and the highest standard score,
not including the adolescent or adult males and females (again depending on their sexual
orientation) was not greater than 0.75 in standard units. If both criteria applied to a participant’s
profile, he was labeled a reflexive responder. In order to validate the appropriate participant
classification, all Abel Assessment graphs were sorted based upon the criteria detailed above by
one of the researchers. A graduate assistant was then instructed in these criteria and performed a
separate Abel Assessment graph sort. The interrater reliability in terms of percentage of
agreement was 97.5 percent.

After the initial sorting of participant data on the *Abel Assessment for Sexual Interest* into
reflexive and non-reflexive responders was completed, an analysis was performed on each
participant’s Abel Assessment graph as to whether or not the pattern of sexual interests
evidenced was or was not consistent with their diagnostic history. Given that the sample was
drawn from a clinical base of men who all met the diagnostic criteria for pedophilia, the function
of the first analysis was to determine the sensitivity of the *Abel Assessment for Sexual Interest* in
correctly classifying known sexual abusers. Results are shown in Table 1. *Abel Assessment for Sexual Interest* was able to classify correctly 27 out of 28 participants in the non-reflexive responder category, for a percentage of true positives of 96 percent. In the reflexive responder category, *Abel Assessment for Sexual Interest* was able to classify correctly 4 out of 11 participants, for a percentage of true positives of 36 percent. The difference between the true positive rates for reflexive and non-reflexive responders was significant at p<.001. The aggregate true positive rate (not distinguishing reflexive from non-reflexive responders) was estimated at 79 percent.

**Table 1**

Comparison of *Abel Assessment for Sexual Interest* and Penile Plethysmography Measures

<table>
<thead>
<tr>
<th>Participant</th>
<th>Disagree with Diagnosis</th>
<th>Agree with Diagnosis</th>
<th>Percentage Correct Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Reflexive Responders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plethysmograph</td>
<td>9</td>
<td>19</td>
<td>68a</td>
</tr>
<tr>
<td><em>Abel Assessment</em></td>
<td>1</td>
<td>27</td>
<td>96ab</td>
</tr>
<tr>
<td>Reflexive Responders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plethysmograph</td>
<td>5</td>
<td>6</td>
<td>55</td>
</tr>
<tr>
<td><em>Abel Assessment</em></td>
<td>7</td>
<td>4</td>
<td>36b</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plethysmograph</td>
<td>14</td>
<td>25</td>
<td>64</td>
</tr>
<tr>
<td><em>Abel Assessment</em></td>
<td>8</td>
<td>31</td>
<td>79</td>
</tr>
</tbody>
</table>

Note: Percentages that share the common subscript *a* are significantly different at p<.01
      Percentages that share the common subscript *b* are significantly different at p<.001

**Penile Plethysmograph Analysis**

Penile circumference data were converted to percentage of full erection for all stimulus categories utilizing the apparatus described above. Deviant sexual arousal was defined as a threshold of at least seventy five percent of estimated full erection. The same participants who were classified as reflexive responders in the *Abel Assessment for Sexual Interest* analysis retained that classification for the plethysmography analysis. As is shown in Table 1 Plethysmography was able to correctly classify 19 out of 28 participants in the non-reflexive responder category, for a percentage of true positives of 68 percent. In the reflexive responder category, plethysmography was able to classify correctly 6 out of 11 participants, for a percentage of true positives of 55 percent. The difference between the true positive rates for reflexive and non-reflexive responders was not significant for plethysmography. The aggregate true positive rate (not distinguishing reflexive from non-reflexive responders) was estimated at 64 percent.

Further, of the 19 non-reflexive responders correctly classified as sexual abusers by the plethysmograph, all 19 had also been similarly classified by the *Abel Assessment for Sexual Interest* for a 100 percent agreement between the two methodologies in this subsample of participants. For the 6 reflexive responders who were correctly classified via the plethysmograph as sexual offenders, however, their *Abel Assessment for Sexual Interest* results did not produce the same
prediction. Finally, of the 28 non-reflexive responders who had both plethysmographic and Abel Assessment evaluations, there was a significant difference between the ability of each procedure to classify correctly the participant as a true positive, with the Abel Assessment for Sexual Interest (96 percent) being significantly better than plethysmography (68 percent) in predicting true positives for non-reflexive responders (p<.01). There was no difference between plethysmography and Abel Assessment for Sexual Interest in correctly classifying participants when the aggregate sample (i.e., collapsing reflexive and non-reflexive classifications) was analyzed.

**Discussion**

This study used a clinical sample of sexual offenders in an outpatient setting to investigate the accuracy or sensitivity of two methods of psychophysiological assessment to classify correctly individuals as sexual offenders. The data clearly show that both the Abel Assessment for Sexual Interest and the penile plethysmograph were able to identify diagnosed pedophiles to a high degree. Overall, the plethysmograph was able to classify correctly 65 percent of the participants, while the Abel Assessment for Sexual Interests was able to classify 79 percent of those participating in this study.

The present study goes beyond other analyses to date, however, in providing analyses of the conditions in which accuracy in predicting true positives can be significantly enhanced in this domain. When a straightforward formula is applied to the Abel Assessment graphs to detect for reflexive responders, i.e., those who attempt to employ dissimulation techniques in the Abel protocol, predictive accuracy is affected. The Abel Assessment for Sexual Interest was able to classify correctly almost all of the non-reflexive responders in the sample, raising the aggregate percentage of 79 percent to 96 percent. Likewise with plethysmography, non-reflexive responders were classified correctly 68 percent of the time, in comparison to 64 percent in the absence of such information. When reflexive responders are isolated as a subsample, only 36 percent are able to be correctly classified as true positives using the Abel Assessment for Sexual Interest and only 55 percent of reflexive responders were correctly classified using plethysmography. When non-reflexive responders are isolated as a clinical group, the Abel Assessment for Sexual Interest was statistically superior to the plethysmograph in detecting true positives.

The results of this study are supportive of both plethysmography and Abel Assessment for Sexual Interest to classify correctly true positives in the area of sexual offending. These results are consistent with the findings of Abel et al. (1998) who concluded that both plethysmography and viewing time measures were effective in the accurate determination of sexual interest. Given the fact that the Abel Assessment for Sexual Interest is a far less invasive procedure when compared with plethysmography, the present results are very supportive of the use of this viewing time measure in the assessment of sexual offenders.

This study also shows the importance of analyzing Abel Assessment graph data in order to evaluate whether the person being evaluated meets the criteria for being considered a reflexive responder or dissimulator. The technique elucidated in this study for labeling a participant a reflexive responder had very significant implications for the ability of both the Abel Assessment for Sexual Interest and plethysmography to classify correctly true positives. It is strongly suggested that professionals who work with populations of sexual offenders that include pedophiles re-evaluate their Abel protocols in terms of the potential for dissimulation before they utilize potentially dissimulated protocols in their diagnostic work or in further research.
This study has several limitations that should be pointed out. First, while the number of participants allowed for appropriate statistical considerations and analyses, complete data were obtained on a total of 39 individuals. Future studies employing a larger participant pool may lead to a greater ability to validate and generalize the results reported here. Second, the present study employed only a clinical sample, allowing for analyses of sensitivity, but an absence of a non-clinical control group. As such, analyses of specificity were not afforded in this study, although direct comparisons between viewing time and plethysmography were possible. Hopefully future studies will address these issues with methodological sophistication that will allow for more comprehensive analyses as well as validation of the importance of the detection of reflexive versus non-reflexive responders in the further validation of the Abel Assessment for Sexual Interest. Taken as a whole, the data obtained in the present analysis support the use of both viewing time and phallometric measures in the proper detection of sexual offenders with pedophilic sexual interests.

References


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