

Differential Erection Response Patterns of Sexual Child Abusers to Stimuli Describing Activities with Children

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The plethysmographic measurement of erection responses to audiotape descriptions of different types of sexual and aggressive activities with children was extended to a much larger sample of sexual child abusers than previously investigated in order to assess the usefulness of this evaluation procedure for differentiating between the most dangerous, physically harmful offenders and the more harmless, nonaggressive abusers. The study involved the assessment of 16 less dangerous and 15 more dangerous sexual offenders against children in response to audiotape descriptions of pregenital consenting fondling, consenting intercourse, physically pressured nonconsenting intercourse, aggressive intercourse, and purely physical assault with children. Results indicated that the more violent offenders responded significantly more to the aggressive cues than did the less dangerous abusers. Subjects' limited ability to suppress undesired deviant arousal did not substantially alter the data. There was a significant difference in the arousal levels achieved between 2 and 4 min of stimulus presentations, suggesting the need for longer than the 2 min of stimulus exposure usually afforded in physiological measurement studies of sexual offenders. Results of the study suggest the advantages of this classification procedure over more traditional, static and less objective methods but also indicate the great need for further research to establish the procedure's predictive validity and reliability.

Traditional schemes for classifying sexual offenders have been based primarily on etiological, victim, offense activity, and offender characteristics. As a result, they have often been inadequate (Abel, 1978): (1) they rarely can be used to differentiate among sexual offenders within the same

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group (Avery-Clark, 1980); (2) they are static and afford offenders virtually no opportunity to change classification status as a function of treatment; (3) they usually are based on subjective clinical impressions (Cohen, Seghorn, & Calmas, 1969; McCreary, 1975); and/or they often are conceptual as opposed to operational (Fenichel, 1945; Wolfe & Marino, 1975).

Recent research results suggest that recording sexual offenders' erection responses to audiotape descriptions of different types of sexual and aggressive activities represents a very new and potentially useful assessment and treatment monitoring procedure that poses few of the difficulties of the traditional approaches and which, if used in conjunction with the familiar schemes, may provide more accurate classification and management of these offenders (Abel, Barlow, Blanchard, & Mavissakalian, 1975; Abel & Blanchard, 1976; Abel, Blanchard, Barlow, & Mavissakalian, 1975; Abel, Blanchard, Becker, & Djenderedjian, 1978; Bancroft, 1971; Bancroft, Jones, & Pullan, 1966; Barlow, 1974; Barlow, Becker, Leitenberg, & Agras, 1970; Freund, 1967; Laws, 1977). In the procedure developed originally with sexual offenders against adults, Abel and his colleagues measured the mean maximum percentage erection responses of nonrapists, rapists, and sadistic rapists to 2 min audiotape descriptions of consenting sex, rape, and physical assault (Abel, Barlow, Blanchard, & Guild, 1977; Abel et al., 1978). The nonrapists generated significant arousal only to the consenting cues; only the rapists produced significant arousal to the rape cues. The sadistic rapists produced significant erection responses to the rape stimuli, but additionally generated even higher arousal levels to the physical assault tapes. A similar procedure has more recently been developed for assessing sexual offenders against children (Abel, Becker, Murphy, & Flanagan, 1981). Erection responses of an admittedly small number of sexual child abusers, six nonaggressive and four sadistic, were measured to 2-min audiotapes of child-initiated and mutually consenting sex, nonphysically and physically but nonforcefully coerced intercourse, physically but forcefully coerced intercourse, and nonsexual physical assault. In an effort to develop a single measure of arousal and to control for individual variability in responding, the mean maximum percentage erection responses of each abuser to the physically coerced tapes were compared to each of their responses to the mutually consenting cues by computing a ratio (the Pedophile Aggressive Index, or PAI). The less dangerous abusers produced an average ratio score of .67, while the mean PAI value for the sadistic abusers was 2.16.

The present study was conducted to evaluate the effectiveness of this type of physiological measurement procedure for distinguishing between nonaggressive and violent sexual child abusers using a much larger sample of offenders than previously investigated.

METHOD

Subjects

Thirty-one adult males were selected from the patient population of men committed to a maximum security state hospital in California for

the treatment of sexual offending. All subjects had been convicted of assaults against children under the age of 14 years.

Subject Selection

Four judges rated the offenders as belonging to the more dangerous (MD) group of abusers or the less dangerous (LD) group. The ratings were made after reading summaries of each subject's case which were based on three sources of information: personal interviews; hospital chart reports on social and psychological histories; and hospital chart reports of police records, court documents, and other material pertaining to offense histories. The judges were required to rate offenders as more dangerous if they (1) had used more force than was necessary to gain victim compliance; (2) had used excessively forceful persuasive tactics; (3) had engaged in sexual or nonsexual assaultive acts intended primarily to serve aggressive rather than sexual impulses; and (4) had been unresponsive to victim expressions of discomfort, displeasure, or pain by continuing with the forceful acts even after compliance had been achieved. Less dangerous abusers were defined as (1) having not used excessive force to gain compliance; (2) having used primarily psychological or pressure tactics of persuasion; (3) having engaged primarily in pregenital or genital acts as opposed to aggressive acts; and (4) having responded to victim expressions of discomfort, displeasure, or pain by discontinuing the forceful persuasive tactics when compliance was achieved.

The judges were requested to rate the offenders as belonging to either the MD or LD group on the basis of these characteristics and to mark the level of confidence with which they made their ratings. A scale from 1 to 4 was used to assess the degree of confidence, with 1 equivalent to "not confident" and 4 indicating a "confident" rating. Subjects were eliminated who were not judged by at least three of the raters as belonging to the same category. Subjects were eliminated also if they did not receive an average confidence rating of 3 or above across the four judges.

Interrater reliability for categorization was 84.6%. Fifty subjects were originally exposed to the assessment materials. Eleven were eliminated because of failure to generate the minimum significant erection response level of 20% required for acceptance in the project. Eight additional subjects had to be eliminated because of interjudge disagreements or lack of confidence in categorization. The final subject pool included 16 sexual child abusers who were rated as LD and 15 who were judged MD. Subjects in the two groups were closely matched for age and race. The mean age for the LD group was 28.6 years, ranging from 21 to 44. The MD group averaged 26.1 years, ranging from 21 to 36. Thirteen Caucasians, one Black, and two Mexican-American subjects were rated LD, while the MD group consisted of an identical number of Caucasians and Mexican-American subjects, but no Blacks.

Apparatus

Basic apparatus for the procedures included a digital pulse volume strain gauge (Parks Laboratories, Beaverton, OR 97005), which was used as a

penile transducer in the manner described by Bancroft et al. (1966). Penile erection responses were recorded on a Beckman RM Dynograph polygraph. Scotch Highlander audio cassette tapes were played on a Sanyo Cassette Recorder, model #M2544-A.

Experimental Room

The subject enclosure was one of four, 4 feet by 6 feet booths in a psychophysiological laboratory. Each subject sat in a comfortable chair facing the forward wall of the enclosure. Each wore the penile transducer and a headset with boom microphone, the leads of which plugged into an interface panel in the wall separating him from the operator and recording equipment. White masking noise was played continuously in the background (Laws & Osborn, 1983).

Erotic Stimuli

Audiotape descriptions were written by the senior author and recorded by a male staff person. Each was approximately 5 min in length. There were two series of 10 audiotape descriptions of types of activities with children. One series varied along a pregenital sexual—genital sexual—nonsexual dimension, the other along a nonaggressive—minimally aggressive—aggressive dimension. The five categories of tapes included descriptions of (1) Consenting Fondling (Cons. Fondl.) in which the abuser engaged in pregenital acts (fondling, caressing) with children and used psychological tactics to persuade a youthful, consenting partner; (2) Consenting Intercourse (Cons. Intcs.) where the offenders involved the child in genital sexual acts using psychological tactics to persuade the ultimately consenting partner; (3) Nonconsenting Intercourse (Nonc. Intcs.) in which the adult engaged a nonconsenting child in genital sexual acts and used forceful tactics of a physical but not excessively violent nature (firm physical pressure placed on an arm or the body and removed when the victim complied); (4) Aggressive Intercourse (Agg. Intcs.) where the offender forced a nonconsenting child to engage in genital acts and used an excessive amount of physical violence to do so; and (5) Aggressive Assault (Agg. Asslt.) in which a very hostile adult forced a very unwilling child into acts of purely physical and excessively violent abuse devoid of an explicitly sexual activity. The consenting, nonconsenting, and aggressive intercourse tapes, and the aggressive assault cues were similar to the mutual consenting, physically coerced, and physically coerced intercourse, and the nonsexual assault cues, respectively, used by Abel and his colleagues (Abel et al., 1981).

One set of these audiotapes was developed for homosexual child abusers and one for the heterosexual offenders. The audiotape scripts were judged by four raters as belonging to one of the five categories.

Two pre-evaluation tapes also were developed, similar in content to the consenting intercourse tapes. These tapes were presented before the series of 10 experimental tapes in order to allow offenders to become

familiar with the laboratory setting and to assess their ability to control their arousal patterns. The subjects were presented with the two pre-evaluation tapes, one under arousal conditions, and one under suppress instructions.

Familiarization. Each subject experienced a period of adaptation to the laboratory setting during which the function of the equipment was explained. Each was instructed in the use of the transducer and informed consent was obtained. As part of the familiarization procedure, each subject listened to the two pre-evaluation tapes while wearing the transducer. To monitor subjects' ability to control their arousal they were instructed to suppress their arousal while listening to one of the familiarization tapes and to allow themselves to become aroused to the other if sexual excitement occurred.

Assessment. The subjects were presented next with the 10 evaluation tapes in random order. The tapes were presented in two separate assessment sessions to control for fatigue. Prior to the presentation, the subjects were given the following instructions:

While listening to the following tapes, imagine yourself becoming sexually involved with the person and activity described on the tape. If you experience yourself becoming aroused to the scene, simply allow that to happen.

A maximum erection score was obtained for each subject in response to each of the audiotapes. The two maximum amplitude of erection scores for each of the five categories of audiotapes were averaged to obtain each subject's mean maximum percentage erection value generated to each of the categories of stimuli. These mean maximum erection scores for subjects in each of the two groups were combined to obtain the mean maximum percentage erection scores for the MD and LD groups of offenders in response to each of the categories of tapes.

In order to obtain a single measure of each subject's arousal patterns to aggressive cues and to control for individual variability in responding, a ratio was computed in which each subject's highest mean maximum percentage erection response generated to the aggressive cues was divided by his mean maximum percentage erection response generated to the consenting intercourse tapes. This ratio was referred to as the Dangerous Child Abuser Index (DCAI).

RESULTS

The mean maximum erection responses for the LD group and the MD group to the five categories of tapes are presented in Table 1. A Mann-Whitney U analysis of the differences between the two groups' average scores on the final two categories of tapes showed them to be significant, $p < .01$ (Siegel, 1956). Fig. 1 is a presentation of the individual DCAI values for the subjects. The LD group produced an average DCAI score of .54, and the MD group generated an average index of 1.04.

Table 2 is a presentation of the percentage of subjects in each abuser group within the range of scores for the DCAI. Table 3 is a presentation

TABLE 1
MEAN MAXIMUM PERCENTAGE ERECTION SCORES FOR ABUSERS

Abuser group	Stimulus category				
	Cons. Fondl.	Cons. Intcs.	Nonc. Intcs.	Agg. Intcs.	Agg. Asslt.
Less dangerous (<i>n</i> = 16)					
Mean	63.40	78.70	71.40	36.40	30.30
<i>SD</i>	33.45	19.92	24.65	28.25	30.88
More dangerous (<i>n</i> = 15)					
Mean	53.80	74.00	71.40	70.90	65.60
<i>SD</i>	27.35	16.88	16.05	18.26	25.01

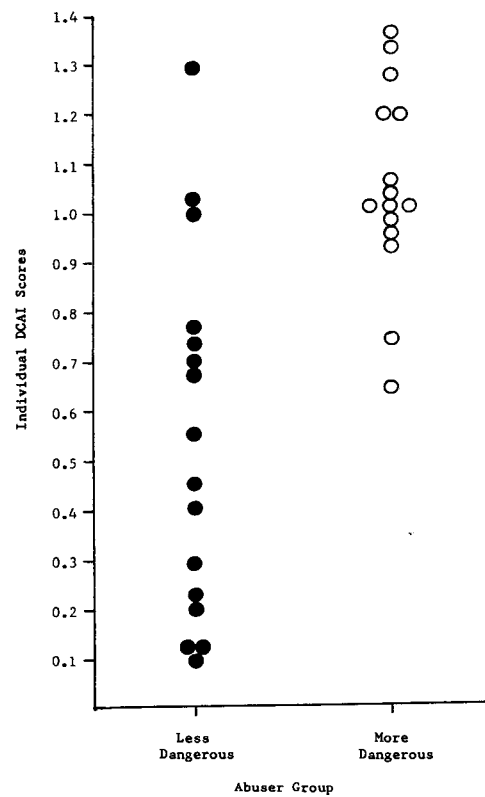


FIG. 1. Individual DCAI scores of less dangerous and more dangerous abusers.

TABLE 2
PERCENTAGE OF SUBJECTS IN EACH ABUSER GROUP WITHIN
RANGES OF SCORES FOR DANGEROUS CHILD ABUSER INDEX

Abuser group	DCAI ranges				Total
	≤0.70	0.71 to 1.00	1.01 to 1.30	≥ 1.31	
Less dangerous (n = 16)	68.8	18.7	12.5	0.0	100.0
More dangerous (n = 15)	6.7	46.7	33.3	13.3	100.0

of the percentage of subjects within each range of DCAI scores belonging to each abuser group.

All of the offenders were able to generate significant erection responses to the first pre-evaluation tape under arousal conditions. Both groups produced average maximum percentage erection scores of 71% to this tape. However, when suppressing their arousal to the second tape they generated an average maximum percentage erection level 29.3% lower than that generated under the arousal condition. The results of a Wilcoxin matched-pairs signed-ranks test indicated that the difference under the two conditions was significant, $p < .01$ (Siegel, 1956). The LD and MD offenders produced slightly different average suppress condition scores (24% and 34.3% lower than the average arousal condition values, respectively), but this difference was not significant. Upon closer examination, the lower average maximum percentage erection value obtained under the suppress condition appeared to be produced by seven LD and eight MD abusers; seven of the remaining LD and seven of the remaining MD offenders showed no difference between their arousal under the arousal and suppress conditions. The two final LD abusers generated somewhat higher erection responses to suppress instructions. The 15 abusers who

TABLE 3
PERCENTAGE OF SUBJECTS WITHIN EACH RANGE OF DANGEROUS CHILD ABUSER
INDEX SCORES BELONGING TO EACH ABUSER GROUP

Abuser group	DCAI ranges				
	≤0.70	≥0.71	0.71 to 1.00	1.01 to 1.30	≥ 1.31
Less dangerous (n = 16)	91.7	26.3	30.0	28.6	0.0
More dangerous (n = 15)	8.3	73.7	70.0	71.4	100.0
Total	100.0	100.0	100.0	100.0	100.0

TABLE 4
MEAN MAXIMUM PERCENTAGE ERECTION SCORES FOR ABUSERS
CAPABLE AND INCAPABLE OF SUPPRESSING AROUSAL

Abuser group	Stimulus category				
	Cons. Fondl.	Cons. Intcs.	Nonc. Intcs.	Agg. Intcs.	Agg. Asslt.
Less dangerous					
Capable of suppressing (<i>n</i> = 7)	58.9	70.7	60.7	30.1	23.9
Incapable of suppressing (<i>n</i> = 9)	61.9	82.8	69.5	32.8	34.2
More dangerous					
Capable of suppressing (<i>n</i> = 8)	38.9	65.8	65.3	69.4	61.6
Incapable of suppressing (<i>n</i> = 7)	70.9	83.4	77.4	72.7	70.1

were responsible for the differences in arouse-suppress condition scores produced an average suppress erection level 67.5% lower than their mean response under the arousal condition. The LD and MD offenders in this group produced slightly different average suppress condition scores (71% and 64% lower than their average arousal condition scores, respectively), but the difference between the suppress scores of the two groups of offenders was not significant. Table 4 is a presentation of the mean maximum percentage erection responses produced to the five stimulus cate-

TABLE 5
PERCENTAGE OF MEAN MAXIMUM ERECTION SCORES FOLLOWING 1, 2, 3, AND 4 MIN OF
STIMULUS PRESENTATION

Abuser group/ Stim. category	Minutes of stimulus presentation			
	1	2	3	4
Less dangerous				
Cons. Fondl.	10.0	38.3	64.8	95.0
Cons. Intcs.	15.5	45.7	68.7	91.0
Nonc. Intcs.	17.7	56.5	8.8	82.3
Agg. Intcs.	11.8	38.7	64.2	89.1
Agg. Asslt.	8.9	53.3	62.0	95.8
Mean	12.8	46.5	53.7	84.7
More dangerous				
Cons. Fondl.	13.6	44.0	77.0	96.2
Cons. Intcs.	14.1	43.4	79.2	97.3
Nonc. Intcs.	10.1	39.3	75.5	97.3
Agg. Intcs.	11.9	46.7	76.7	95.6
Agg. Asslt.	10.5	54.8	78.0	96.8
Mean	12.0	45.6	77.3	96.6

gories by the LD and MD offenders who were able to suppress their arousal significantly, and by the LD and MD offenders who were not able to exert this type of control. Mann-Whitney *U* analyses of the differences between the two LD groups and between the two types of MD offenders indicated that there was no significance between the scores generated to the five stimulus categories by those LD and MD subjects who could exercise control and those who could not ($p > .05$, Siegel, 1956).

Table 5 is a presentation of the percentage of mean maximum erection levels achieved by the LD and MD group in response to each stimulus category following 1, 2, 3, and 4 min of stimulus presentation. The results of a Wilcoxin matched-pairs signed-ranks test indicated that the LD and MD offenders generated a percentage of their maximum erection responses to each stimulus category and across all categories by the end of 4 min of stimulus presentation that was significantly greater than the percentage of maximum erection recorded by the end of 2 min of exposure to the stimuli, $p < .01$ (Siegel, 1956). There was no significant difference between the proportion of maximum erection achieved by 4 min and by 5 min of stimulus presentation.

Fig. 2 is a presentation of the individual recordings of one less dangerous abuser (Subject 1) and one more dangerous offender (Subject 6). These were generated to one of the tapes in each of the five stimulus categories. Interestingly enough, these two sexual child abusers had similar offense histories (a large number of deviant sexual encounters beginning in their early teens), preferred the same type of victim (involved exclusively with young boys), and had engaged in similar deviant activities (including the use of forceful tactics of persuasion). However, the LD offender would limit his infrequent use of forceful tactics to the point of gaining victim compliance; he could be dissuaded from its use altogether by an actively resistant child. The MD offender not only reported a preference for sadistic sexual encounters but had been arrested on numerous occasions for excessively aggressive sexual child abuse.

DISCUSSION

The major finding of this study was that the two groups of sexual child abusers differed significantly in their response to scenes of aggressive sex and assault, but did not differ in their arousal to the consenting fondling and intercourse, and the nonconsenting intercourse cues. Nearly 70% of the LD group (11 of 16) could be identified by a DCAI score of .70 or less while almost 92% (11 of 12) of those offenders with DCAI values of .70 or less were from the LD group. More than 93% (14 of 15) of the MD abusers were identified by a DCAI score above .70. Nearly 74% (14 of 19) of those offenders with DCAI scores above .70 were MD abusers.

A second finding was that the ability to voluntarily suppress arousal did not change the different arousal levels between the two groups. Investigators report that subjects have limited ability to suppress undesired deviant arousal (Henson & Rubin, 1971; Laws & Holmen, 1978; Laws & Rubin, 1969). The present study included a method for monitoring

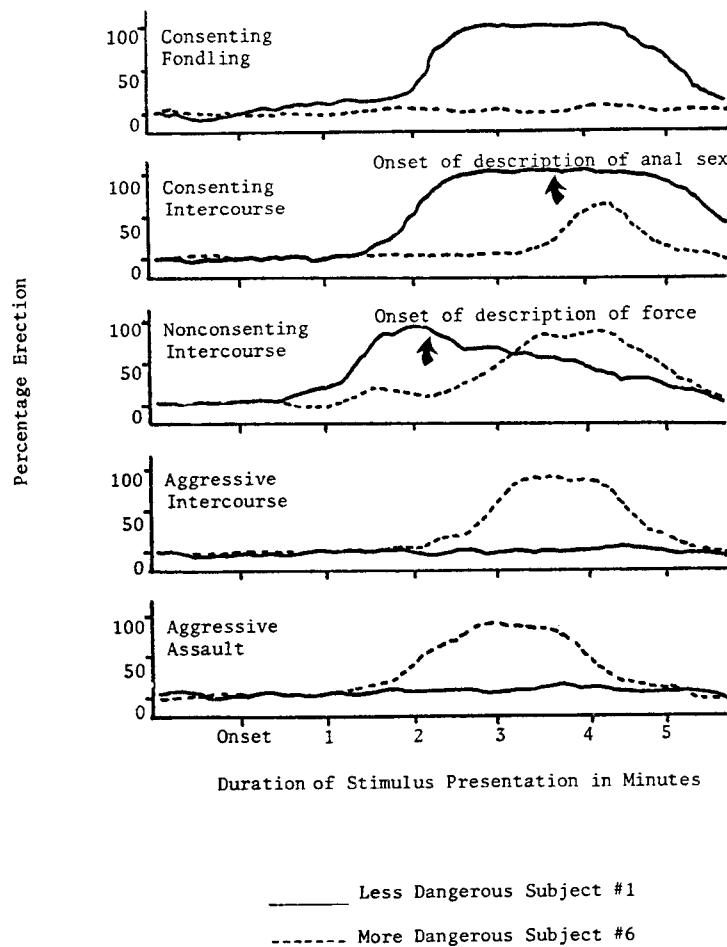


FIG. 2. Examples of individual tracings to different stimulus categories of audiotapes.

this confounding variable of response "faking" using a procedure similar to the standard control. The results confirm the finding that approximately 50% of subjects are able to exert some control over their arousal (Laws, 1982). However, these subjects were not removed from this study because there were an almost equal number of LD and MD subjects who demonstrated this ability to suppress arousal. Additionally, as presented in Table 5, the mean maximum percentage erection responses generated to the tape categories by the LD and MD offenders who could exert control were not significantly different from the values produced by their non-controlling counterparts. These findings confirm observations that faking

undeniably occurs but probably does not influence most assessment decisions substantially.

A third finding of this investigation was that there was a significant difference in the maximum erection responses generated across all stimulus categories between 2 and 4 min of stimulus presentation. This is particularly interesting in light of the results of the major study that has previously been conducted on recordings of erection levels of sexual child abusers to descriptions of activities with children in the differential assessment of these offenders (Abel et al., 1981). In this investigation, it was noted that the maximum percentage erection scores achieved by subjects ranged from 13% to 24%. These values, regarded by the researchers as significant indicators of arousal, were quite low and often not much greater than the 10% level of general physiological responsiveness considered by the investigators as random "noise," produced in response to stimuli that are not specifically sexual in nature. (This random response level is defined as between 0% and 20% in the physiological laboratory in which the present study was conducted.) These low levels of responding (as well as the interlaboratory differences in absolute magnitude of abuser responsiveness) may be explained as a function of the length of the stimulus presentation. While the cues used by Abel and his colleagues were 2 min long, the tapes in the current investigation were over 4 min. While offenders against adults may produce a significant, and their greatest, proportion of their responsiveness after 2 min of audio presentation (Abel et al., 1977), child abusers appear to require longer stimulus presentation.

The individual polygraph tracings of the erection responses of the MD and LD offenders presented in Fig. 2 provide valuable information about sexual preference patterns that can be obtained by single case analyses of physiological data, information that would not be available from an examination of maximum percentage erection scores. In particular, the recordings in response to the nonconsenting intercourse tape indicated that the LD offender experienced detumescence at the onset of the descriptions of force while the MD abuser became aroused precisely at this point. These response profiles correlate with the LD offender's preference for nonviolent sexual activities with children, and the more aggressive abuser's enjoyment of sadistic stimuli.

In conclusion, the results of the present investigation suggest the potential usefulness of this relatively new physiological procedure for recording erection responses generated to audio descriptions of different types of activities with children in the identification of sexual preference patterns of sexual child abusers. Such a physiological approach to abuser classification might be particularly useful because, unlike most traditional schemes:

- (1) It can be used to differentiate among sexual offenders within the same group. Traditional schemes usually provide only for classification into one general category of offender (e.g., rapist, child abuser, exhibitionist).

(2) It involves the use of nonstatic classification information (erection response patterns) rather than data that are unalterable as a function of treatment progress.

(3) It allows for assessment based on information that is more objective than the clinical impressions so often used in traditional evaluation.

(4) It facilitates the operational development and clearly defined monitoring of treatment programs and progress. Unlike the often conceptual goals of treatment programs based on traditional classification schemes, the aim of treatment developed from the plethysmographic evaluation method is clearly defined (the alteration of deviant sexual arousal patterns). The program goal is based on data collected during the assessment procedure (erection responses generated to audio cues). Therapeutic intervention strategies logically follow from the evaluation procedures, and the evaluation procedures can serve as effective treatment monitoring techniques.

It must be cautioned that this is a very new assessment tool and, as such, should only be used in conjunction with existing classification schemes. There exists no research on the long-term predictive validity and reliability of this procedure with regard to identifying more and less aggressive sexual child abusers. There is very little research on its postdictive validity and reliability. At this point it must be regarded strictly as a method that holds the potential for being a more objective approach to classifying sexual child abusers and differentiating between those most physiologically dangerous offenders, who may require the most structured and intensive inpatient management, and those who, although dangerous in terms of a tendency to engage in acts with children, do not represent a physical threat and who, therefore, may be candidates for less restrictive outpatient treatment.

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