

FEATURE ARTICLE

Applied Psychophysiology and Cognitive and Behavioral Therapy in the Treatment of Sex Offenders¹

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This article presents an application of applied psychophysiological and cognitive and behavioral strategies to the treatment of sex offenders. The participants were 21 sex offenders treated as outpatients at the Veterans Administration Medical Center in White River Junction, Vermont. A repeated-case-study format was used. Because hyperventilation destabilizes the autonomic nervous system (disrupting and/or preventing erection and other aspects of male sexual arousal) and dramatically changes brain function (degrading train of thought and shifting neuroendocrine function), clients were taught to hyperventilate in response to thoughts and images of the targets of their illegal behavior. Psychophysiological indices included skin conductance and penile plethysmograph. Participants were treated in six individual sessions, and most have been followed up for more than 2 years. Results show that with motivated clients, this procedure produces convincing, positive results.

Introduction

Reviews of the published literature on treatment of sex offenders reveal many difficulties, including wide individual differences among sex offenders; few sources of data showing a truly powerful impact of any single treatment; the fact that most therapists do what they are familiar with; a low general level of accountability in the field; and problems in attempting to arrange long-term follow-up visits with these clients.

There is increasing appreciation of individual differences among sex offenders. A model addressing individual differences has been proposed (Yates & Kingston, 2006). This model has nine functions, or factors, being considered and hypothesizes four “pathways” to an offense. These pathways include an opportunistic pathway (which is followed when an unexpected opportunity appears) and an intentional, or planned, pathway that would include such activities as “grooming” and what some of my clients

have called “cruising” or “trolling”. However, as far as I can determine, there has been very little tailoring of treatment to such individual differences.

The most promising outcome study I have seen is by McGrath, Cumming, Livingston, and Hoke (2003). They examined the recidivism rates of 195 inmates who had been referred to a prison-based cognitive-behavioral treatment program for sex offenders. They wrote, “Over a mean follow-up period of almost 6 years, the sexual re-offense rate for the completed-treatment group (N = 56) was 5.4 percent vs. 30.6 percent for the some-treatment and 30.0 percent for the no treatment groups” (p. 3). The mean number of months in prison therapy was 30.6 (with a standard deviation of 11.4 months); 87.5% of these individuals received community supervision after release, and this supervision lasted for a mean of 33.5 months.

Unfortunately, it appears that the closest practical monitoring of an outpatient sex offender may not detect ongoing offenses. Furthermore, phallographic (penile plethysmography) and polygraphic detection formats are also fallible. (The penile plethysmograph measures changes in blood flow in the penis and provides an operational measure for sexual arousal.) For example, even with a narrowly selected group of subjects (homicidal child molesters), Firestone, Bradford, Greenberg, Larose, & Curry (1998) were forced to resort to very cautious probability statements in their discussion of the utility of the penile plethysmographic data.

From my review of the literature it appears that comorbid conditions should be attended to, that medication treatments should be considered for inclusion in the initial treatment of sex offenders (Bradford, 1998), and that vicarious sensitization might also be a useful component in a multimodal program (Weinrott, Riggan, & Frothingham, 1997) featuring cognitive/behavioral interventions including social and life skills training, cognitive restructuring, victim empathy, and relapse-prevention strategies.

¹ Copies of the detailed description of the protocol, the contract, the homework data sheet, and the form letter used to communicated with legal authorities are available from the author.

Method

A method that we have devised appears to be very helpful in the treatment of nonincarcerated sex offenders. It is a self-regulation method that can be taught in a very short time and focuses only on the elements of control and reduction of deviant arousal and relapse prevention. (It is important to note that I am describing clinical research done in a small practice, using a repeated-case or single-group longitudinal design, with many confounding variables. It is also important to note that it is not being suggested that this method alone should be used. Other components such as those described above should be included in the treatment regimen whenever possible.)

Our brief focused treatment of sex offenders is distilled from a multifaceted format I used at the Veterans Administration Medical Center in White River Junction, Vermont, in the 1970s. This format included extensive assessment of sexual history, social history, sexual and social attitudes and proclivities, penile plethysmograph and polygraph assessment, biofeedback, and exposure to a wide range of auditory and visual test stimuli. The work was done both individually and in groups. The group sessions, conducted whenever there were two or more clients in treatment at the same time, included elements of perspective taking, victim empathy, sex education, and values clarification. One element in the treatment involved training clients to use hyperventilation to prevent and/or abort sexual arousal. It is on this element that I will now focus. This brief protocol has been used, essentially alone, with the offenders treated at this facility since 1981.

Regarding psychophysiological indices, our work prior to 1981 showed that skin conductance was a very useful indicator of both sexual arousal and general arousal. Over the years that I used both skin conductance level and penile plethysmograph monitoring, it became clear to me that penile plethysmograph was helpful with only some of the clients, whereas skin conductance level was helpful with all. Accordingly, we have used only the skin conductance measure in subsequent years. Concomitant treatments were used with most of the clients, and these, since 1981, have generally been provided by outside agencies.

In the work that we did during the 1970s it appeared that individual differences rendered some of the elements of the larger program useless, or at least of dubious value. However, the hyperventilation element appeared to be a powerful feature for every client. Furthermore, the hyperventilation element could be properly taught, practiced, and evaluated in six sessions. The hyperventilation element and its rationale could be easily communicated to

all government and legal agencies involved in the case. Finally, the hyperventilation element clearly places responsibility on the offender. At the end of the first session he should understand the immediate and powerful impact of the hyperventilation activity on cognitive and physiological aspects of sexual arousal.

The hyperventilation protocol is based on the following considerations:

1. Hyperventilation destabilizes the autonomic nervous system. The components of this system—the sympathetic and parasympathetic divisions—must work together in an intricate sequence in order to develop and maintain male sexual arousal (Walsh, 1998; Wenger, Averill, & Smith, 1968). More specifically, penile tumescence is developed by a series of shifts in dominance between the sympathetic and parasympathetic divisions. This subtle sequence is disrupted by hyperventilation, which produces a rapid surge in sympathetic dominance, soon followed by a change to parasympathetic dominance and a subsequent prolonged period (from 1 to several minutes) during which development of tumescence is unlikely, if not impossible (Walsh, 1998). Similarly, maintenance of a fully developed erection depends on the maintenance of a particularly stable relationship between the sympathetic and parasympathetic divisions (Walsh, 1998). Autonomic balance is disrupted by hyperventilation and detumescence is rapidly initiated.
2. Hyperventilation dramatically changes the electrical activity of the brain and disrupts the train of thought. Fisch (1991) reported that hyperventilation triggers electroencephalograph (EEG) responses that “consist of generalized slow waves which begin soon after the onset of hyperventilation,” and the disruption in an individual with normal brain function “ends within one minute after the patient stops hyperventilating” (p. 219). It is clear that brain function and train of thought are important factors in most occasions of sexual arousal. If the reader doubts that hyperventilation influences train of thought, the proof is only a little more than a minute away. Select a topic and think about it for 15 seconds. Then hyperventilate vigorously for a minute while attempting to maintain this train of thought. At the end of the minute, notice the degradation in thought pattern, loss of clarity of images, perhaps total loss of memory for details of the thought that occurred over the first 15 seconds, and in some cases loss of even the topic that had been selected for consideration. Also notice that many seconds go by

before one can resume a train of thought approximating in all aspects those prevailing before hyperventilation.

3. There is some evidence that the type of instructions and the demand characteristics of the situation can influence the affective impact of hyperventilation. However, when no expectation is provided to participants regarding the sensation that will be produced (Salkovskis & Clark, 1990), hyperventilation is aversive. Hyperventilation has been aversive for all individuals we have studied and is profoundly aversive for many. Consistent pairing of an aversive stimulus with a particular pattern of thoughts and behaviors produces an emotional reaction that should decrease the probability of thoughts of illegal sexual acts in the future and should decrease the probability of sexual arousal in the presence of a potential victim.
4. In the event that the conditioning process does not have a reliable automatic impact on sexual arousal in inappropriate circumstances (in the presence of an underage person or a nonconsenting adult), the offender, on the occasion of noticing sexual thoughts or tumescence, can initiate hyperventilation (functioning as an operant, in learning theory terms) to abort sexual arousal and attendant thoughts. In other words, this procedure is portable.
5. In some cases the convergence of some or all of the above factors can lead a motivated client to a pattern of self-control that appears to contain classically conditioned elements (or to function as a respondent, in learning theory terms). Our best example is a college student who had been previously convicted of a sexual offense. Prior to going to college this young man had been extensively treated using other procedures. Finding himself continuing to be attracted to young boys, he volunteered for therapy at his student mental health center. He was then referred to us. We used the format described here and found that he could interrupt the train of thought and prevent development of tumescence with two to five hyperventilating breaths. When he realized that this was occurring, he became much more confident in his self-control and a moderate to severe depression went into remission.

There were 21 clients in our study and all were men. Twenty of these were military veterans, ranging in age from 27 to 71.

The group included two exhibitionists and 19 pedophiles (15 of whom molested only girls, and four of whom molested primarily boys). All but one had a criminal

record, with at least one sexual offense included. Three of the participants volunteered for treatment and were not currently under investigation for, or mandated to seek treatment for, a crime. None of the participants was currently incarcerated, although many lived in supervised quarters and were under the supervision of probation and parole agencies.

Before beginning treatment, we ensure that the client has had a recent physical examination. When the client has a clean bill of health in terms of neurological, cardiovascular, and respiratory functioning, the 1-minute hyperventilation assignment presents no risk. In the event of neurological, cardiovascular, or respiratory problems, a physician is consulted. When there have been health concerns, reduction of the duration of the hyperventilation assignment from 60 seconds to 15 to 30 seconds has been found to be safe.

The treatment protocol consists of six weekly sessions, with follow-up sessions scheduled for at least 2 years (many of these clients have been followed considerably longer than that). The follow-up sessions are separated by 1-month intervals at the beginning of the follow-up period and by 3-month intervals at the end. The six treatment sessions involve assessment, contracting, training in the use of hyperventilation (using psychophysiological monitoring and biofeedback to verify the biological impact of hyperventilation), and a daily homework assignment, with the homework exercises tape-recorded.

The first session begins with a clarification of the client's situation regarding type of offense, any pending charges, current living situation, and so forth. Next, we provide the client with a full text of our assessment and treatment format and encourage discussion. The document describes the use of polygraphy during assessment and includes a section regarding the importance of full disclosure of all details of sexual and social history. (In our experience, the use of a polygraph has appeared to be very helpful. It is worth noting that in 2006, Gannon reported that even the use of a fake polygraph decreases attempts to deceive.) A self-referred offender who is not facing charges is immediately informed of our professional and legal reporting obligation.

Following this phase, the client is asked to sign a statement at the bottom of the document describing the format that says, "I have read the above description of planned assessment and treatment and agree to participate in, and comply with, all aspects of the program." (A copy of this document is available from the author.) Then the client is asked to sign a release of information form for each individual and agency (e.g., state's attorney, probation

officer, client's attorney) involved in the referral of this client to us. These forms specify that all details of assessment and treatment can be transmitted to any individuals representing government and legal agencies involved in the case (a copy of the document that we send to government and legal agencies explaining our procedure is available from the author). We do not start treatment unless the client is willing to sign these documents. Finally, the client is asked to read over a consent form that, if signed, will allow us to aggregate his data with data from other people undergoing the identical treatment so that we can do further evaluation of its effectiveness. The client is told that even if he refuses to sign this consent form regarding aggregation of data, the treatment will continue. None who has signed the release of information agreements has refused to sign the consent form allowing us to aggregate the data.

In some cases an offender will suddenly seek treatment when he realizes that government agencies have recently been or will soon be notified of his illegal behavior. Most of the offenders seem to do this in the hope that the government and legal agencies will treat them more kindly if they have begun to seek help. It is important that the therapist make clear to the offender and to the government and legal agencies that this program is not a substitute for due process.

It also should be noted that many individuals will seek treatment at a veterans hospital in order to avoid the expense of obtaining private treatment. It seems advisable to prevent them from using this alternative if there is any possibility for them to pay fees to a community mental health center or to a private practitioner approved by the court, because the payment of private fees would probably increase the motivation of many individuals.

After the documents have been signed, the polygraph leads for monitoring skin conductance, peripheral blood flow from little finger of the right hand, and heart rate are applied. At this point the two purposes of the polygraph are explained: (a) to help ensure full disclosure and (b) to demonstrate the biological impact of hyperventilation to the client. Next, a brief sexual history is obtained. (Resistance can be expected at this stage. Several focusing tactics can be helpful. A description of these is available from the author.)

After the sexual history has been completed, at least 20 minutes is spent describing and demonstrating hyperventilation and explaining the rationale for its use. First the biological basis of sexual arousal is described and then the relationship of thoughts to sexual arousal is explained. Next the ability of hyperventilation to interrupt both

thoughts and sexual arousal is spelled out. Finally, hyperventilation is demonstrated, and the client is engaged in a brief hyperventilation practice session immediately after being asked to think about his most recent sexual experience. The physiological changes produced in the client by hyperventilation are clearly shown by the skin conductance tracing on the monitoring screen. At this point the client is asked about the impact of the hyperventilation on his thoughts and feelings. All have mentioned dramatic changes, including loss of train of thought, and most have mentioned feeling dizzy and confused during and after the hyperventilation.

Clients must be made aware that they are being trained in use of hyperventilation to prevent and/or abort unwanted sexual arousal. It is important to emphasize to them that the key is motivation to avoid illegal sexual activities and that they will have the ability to do this, using hyperventilation, if they choose to do so in the future. (It is important to note that two clients, who appeared to be motivated to abstain, did reoffend. However, they have reentered treatment and since then have apparently abstained. These cases are described in the Results section.)

Following this explanation, the client is instructed in the format for daily homework practice of producing and aborting sexual arousal. The homework assignment is clearly explained on a record-keeping sheet that is presented to the client to aid in the instruction. The instructions specify that the practice must be carried out each day and that the whole exercise must be tape-recorded. The client is instructed to become sexually aroused using his typical fantasies or images of a typical or desired episode of sexual activity. He is instructed to describe his fantasies aloud, so that the tape recorder will pick them up. Once he has achieved his peak sexual arousal, short of orgasm, he is to rate the sexual arousal (using the scale from 1 = *just noticeable* to 10 = *highest ever*). He is then to start a stopwatch and begin hyperventilating for the prescribed time (usually 1 minute). When the hyperventilation period is over, he is to rate his sexual arousal again. Copies of this homework data sheet are used to guide and monitor homework between each of the subsequent sessions, as well as between the final session and the first follow-up session, which is scheduled 4 weeks after the end of the sixth treatment session. At this point, the client is again told that he should now be using hyperventilation to prevent or abort occasions of sexual arousal in the presence of anyone other than a consenting adult partner.

There are several problems presented in my sample of sex-offending clients that other workers also have strug-

gled to deal with. First, some clients have expressed extreme indignation at being asked to even consider an immoral act. In fact, it appears that some clients seem to enjoy the expression of righteous rage; they seem to be taking an extreme fundamentalist position that moves them to a very simple world of absolute right and wrong. In this simple world they see themselves on the side of goodness and right, with the privilege, or even the responsibility, of heaping scorn on some despicable monster. For example, the sex offender may focus on a police officer who made a mistake in writing up some small aspect of the findings. They speak of this event as if it were a sin worthy of extreme punishment. As they speak it appears that they suddenly feel little or no culpability for their own misbehavior. It is as if their problems have vanished, or at least have become relatively unimportant in comparison to the horrible sin they are righteously describing. I have found that it is important not to debate with them about such things, but to remind them that we are focusing on the issue of their own self-regulation. Second, older clients often complain that they no longer experience erections. In such cases the homework assignment is phrased to focus on sexual imagery, particularly concerning memories of the sort of behavior that brought them to us. In other words, we instruct these clients to focus on memories and images of the behavior that got them into trouble and then rate the clarity of those images (instead of sexual arousal or the degree of erection) before and after hyperventilation.

As mentioned above, each homework session is to be tape-recorded to ensure that homework is completed properly. The client is told to leave the tape recorder on throughout the sequence, from the beginning of fantasizing out loud to the final rating of sexual arousal. The client is asked to bring both the tape recording and the completed homework record-keeping sheet to the next session. (If there are any clicks or other indications that the tape has been turned off and on during the sequence of a homework session, the therapist should be suspicious regarding compliance and should again instruct the client to leave the tape recorder on throughout each homework session. If the client has no tape recorder, the therapist should make available an inexpensive tape recorder and tape for the client to take home. In such a case, the client can be required to sign a contract to return the tape recorder at the end of treatment.)

The second session and the remainder of the six treatment sessions are scheduled a week apart. At the second session, the homework data sheet is reviewed, and the tape is spot-checked in the presence of the client. Any

omissions or odd sounds are discussed in detail. It is frequently necessary, even with people of above-average intelligence, to repeat all instructions and the rationale at the second and third sessions, to forestall, or cope with, any failure or pretense of failure to understand the instructions.

The polygraph/psychophysiological monitoring system is again used in the second session, but only to track skin conductance. The purpose of this is to monitor use of the homework assignment. Accordingly, the client is asked to go through the homework steps—describe his arousing imagery, rate sexual arousal, hyperventilate, and rate sexual arousal again following the hyperventilation. Skin conductance is a particularly useful index because it provides a dramatic and rapid means of showing that hyperventilation quickly leads to a large increase in skin conductance that is accompanied by a rapid loss of the subjective sense of sexual arousal and by the disruption of related cognitions.

Once the client has clearly understood the instructions and has properly completed a homework assignment, subsequent sessions simply involve a review of the homework sheets, combined with spot-checking the tape and issuing a new homework sheet and tape. During these sessions, time is available for brief discussions of value systems and work on perspective taking, victim empathy, social skills training, sex education, and cognitive restructuring.

During the sixth and final hyperventilation session, the client is given homework record-keeping blanks for 4 weeks and is scheduled for a follow-up visit 1 month later.

Results

The results of application of the hyperventilation format are very promising. Only 2 of the 21 clients reoffended (the shortest follow-up period is 3 months, and the average follow-up period is more than 6 years). This result is particularly noteworthy because 13 of the clients have continued living in the relatively rural setting in which the crime was committed. They have been under very frequent, if not constant surveillance, by police, community, and/or family members. Several of the clients lived for many months in a location that was run by the correctional system. Several others live in a sheltered living situation; these individuals would have been quickly reported to the legal authorities and eventually to us if a reoffense had been detected. (It is worth noting that we are in frequent communication with many of the attorneys and the probation, parole, and police officers who know these clients well and see them frequently.)

Of the two reoffending clients, one had previously molested many boys and had spent 5 years in federal

prison, where he had participated in various forms of therapy. Upon his release, the rehabilitation department of the prison contacted us due to our proximity to the client's hometown and due to their concern that he would reoffend. After completing our six-session program, he continued to report powerful urges to seduce young boys. We worked with him for an additional 20 sessions over 14 months, with continuing practice of the hyperventilation strategy and cognitive-behavioral therapy, before he reoffended. He was on an antiandrogen medication regimen, beginning with the third session of our work with him, and was on this regimen at the time of the reoffense. He was able to abort this offense (touching the penis of a 9-year-old boy he was babysitting) after a few seconds by using hyperventilation and reported the offense to the therapist on the next day, knowing that he would be once more incarcerated. Following his release, he completed four booster sessions. During one of these sessions he said he did not want to damage any more children. He said that he is now avoiding dangerous situations (e.g., no longer "babysitting"). He also repeatedly said that when tempted to reoffend, he uses the hyperventilation routine and leaves the situation as quickly as he can. He has been closely observed by the police in his town and by other citizens. He is currently attending follow-up visits with us approximately every 3 months, and as far as we can determine (based on monitoring by the local police, polygraph assessments, and the client's self-report), he has not reoffended during a 12-year follow-up period.

The second reoffending client was an exhibitionist. He completed the protocol prior to committing another offense (an obscene phone call that was traced). Because he was still on probation for previous offenses, he was imprisoned for more than 1 year, and while in prison he joined a church. He has been in frequent contact with us since his release (several times a month he attends a group meeting with other clients who have a wide variety of problems). He has remained involved with the church he joined while in prison, and as far as we can determine he has not offended again.

Discussion

The reader may wonder why only 21 clients have been through this protocol in more than two decades. One factor is obvious. We are located in a relatively rural area where fewer clients with any particular problem are seen during any fixed period of time. Workers in an urban setting will be able to amass large numbers of subjects far more quickly than we can. A second factor has to do with engagement in

therapy. During the period covered by this report, 29 sex offenders were referred to us. Of these, one was organically impaired, from a severe stroke, and another was a man with mental retardation, apparently from birth. Both of these clients failed to grasp the basic elements of the program. The other six clients did not engage with us. Several refused to sign the release of information agreements allowing us to communicate with legal authorities involved in the case, and some failed to return for subsequent sessions. Most of these individuals were self-referred, but two chose to put themselves at the mercy of the legal system rather than go through our procedure.

The hyperventilation format has produced convincing, positive results with our clients. The format has numerous advantages, including short duration of treatment, placement of responsibility on the client, and ease of communicating the method to the patient and to other interested parties. Furthermore, this format can easily be included in existing multimodal treatment programs. Our results strongly suggest that hyperventilation is a useful tool for reducing sex offenses when used with motivated clients. (It is worth noting that this method has also been successful in treating those individuals who are motivated to change and are addicted to pornography, as well as others who are in trouble due to chronic masturbation—for example, a man older than 60 years of age who was repeatedly in trouble due to this behavior.)

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