Evidential Basis for the Assessment and Treatment of Sex Offenders

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This article will review current clinical knowledge on paraphilia and methods of assessment and treatment of sex offenders. In recent years, a better understanding of the physiological and psychological dynamics underlying abnormal sexual behavior was gained through advances on the neurobiology and neuropharmacology of sexual behaviour. Sex offenders form a heterogeneous group that presents a challenge regarding assessment. Components of a full comprehensive sexual behaviors assessment are discussed, detailing the evidence available on the use of penile plethysmography testing. Results of several studies showed that such testing discriminated child molesters from other sex offenders and non-offenders. Treatment modalities include a variety of pharmacological agents and psychological approaches, as treatment outcome studies demonstrate the overall effectiveness of treatment in reducing recidivism of sex offenders. Finally this article discusses future avenues for research, including research aimed at improving the validity and reliability of assessment of sex offenders and the development of non-invasive investigational procedures that make use of new information technology. [Brief Treatment and Crisis Intervention 8:130–146 (2008)]

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substantiated by the U.S. child protective service (CPS) agencies declined by about 40% from 1992 to 2000, from roughly 150,000 cases to a low of approximately 89,500. The authors explored the evidence underlying several possible explanations for such decline including increasing conservatism by CPS agencies, exclusion of cases not involving a caretaker, changes in CPS data collection methods or definitions, less reporting, diminished reservoir of older but newly disclosed cases, and finally the possibility of a true decline. Although they found inconsistent evidence for most of the explanations they considered, the strength of current evidence supports the notion that a real decline occurred in incidents of sexual abuse. The evidence includes a decline in self-report measures of sexual assault and sexual abuse; an improvement in many other indicators of crime, sexual behavior, and family problems over the same time period; and a multitude of prevention and intervention initiatives to reduce sexual victimization (Finkelhor and Jones, 2004).

Although sex offenders are commonly defined in categories based on victim or offense characteristics (i.e., child molester or rapist), they are in fact a heterogeneous group that presents a challenge regarding assessment. Abel, Becker, Cunning-Rathner, Mittleman, and Rouleau (1988) reported that more than 42% of sex offenders had child and adult victims, 20% offended against both male and female victims, and over 23% offended against both related and unrelated victims.

Assessment of Sex Offenders

Sex offenders and other individuals who present with atypical sexual behavior must undergo a comprehensive clinical evaluation to allow a full understanding of the dynamics involved and enable effective individualized treatment. A standardized evaluation consists of a psychiatric evaluation with a detailed psychiatric history and mental status examination to diagnose associated psychiatric and other medical conditions. The assessment of sexual behavior consists of a sex hormone profile, sexual questionnaires, and physiological testing of sexual preference. The sex hormone profile, consisting of free and total testosterone, follicle-stimulating hormone (FSH), luteinizing hormone (LH), estradiol, prolactin, and progesterone, is used to screen for abnormal hormone levels and to establish a baseline level for possible future pharmacological treatment. The sexual questionnaires are used to provide a structured sexual history and measure the nature and degree of sexual fantasies; the nature and degree of cognitive distortions and how they relate to paraphilias, components of sexual drive, and of nonparaphilic sexual behavior; and the presence and extent of substance abuse. Physiological measures of sexual arousal are used to help clarify whether a deviant sexual preference (i.e., rape proneness, pedophilia, and sexual sadism) is present or not.

Physiological Measures of Sexual Arousal

Penile Plethysmography. Penile plethysmography (PPG) is the direct measurement of changes in penile blood volume in response to external sexual stimuli. PPG is used in the clinical assessment of males’ erotic age and sexual preference, testing of identified or suspected sex offenders, for risk assessment, to help determine treatment needs, and evaluate the effects of intervention. The use of PPG is based on the premise that increased penile blood volume is associated with sexual arousal in men (Bancroft, Jones, & Pullan, 1966) and that measures of current sexual arousal are reflective of overall sexual preferences or sexual responsiveness. Changes in penile tumescence are monitored while the subject is presented with a set of auditory and (or) visual stimuli that describe
or depict sexual interactions involving different partners and different types of behavior. The sexual events are designed to vary with respect to age, gender, degree of consent, coercion, and violence portrayed.

Volumetric and circumferential PPG methods have been used to measure deviant sexual arousal in male sex offenders. Although a comparison of measurement outcomes found the volumetric method to be more sensitive than the circumferential method in detecting the smallest changes in penis diameter (Kuban, Barbaree, & Blanchard, 1997), the two methods were found to be equally reliable given at least a 10% increase in penile tumescence. Most laboratories currently use circumferential testing, which is generally felt to be easier to conduct and less invasive than the volumetric method.

Despite its considerable clinical potential, the use of PPG testing in the assessment of sex offenders has aroused much criticism and controversy. The value of PPG testing is compromised by a lack of standardized guidelines for its use, including the lack of a standardized stimulus set. Howes (1997) reported considerable inconsistency across North American laboratories regarding basic parameters of measurement, scoring, and interpretation of PPG data. There is a lack of consensus as to the appropriate content and efficacy of each stimulus modality (i.e., audiotape/videotape/slide) that has resulted in much variation between laboratories in terms of PPG stimulus sets used. As well, laboratories have a wide range of minimum response requirements and different criteria for the inclusion of low levels of arousal in data analysis. PPG has also been criticized for having relatively modest levels of sensitivity, the correct identification of true positives. Few studies report standardization values of PPG testing such as sensitivity and specificity (correct identification of true negatives). Most studies that have reported such values indicate that the sensitivity of PPG testing for pedophilia is much lower than its specificity (e.g., Barsetti, Earls, Lalumière, & Bélanger, 1998; Blanchard, Klassen, Dickey, Kuban, & Blak, 2001; Seto, Lalumière, & Blanchard, 2000; Seto, Lalumière, & Kuban, 1999). Specifically, these findings indicate that only half of child molesters who do not admit pedophilic interests may be correctly identified compared to more than 95% of men with no known child victims.

The poor sensitivity of PPG testing is in part due to deliberate manipulation by some subjects to produce responses characteristic of nonsex offenders. Studies have repeatedly demonstrated that penile tumescence is at least partially subject to voluntary control (Freund, 1961, 1963, 1967; Lalumière & Earls, 1992; Mahoney & Strassberg, 1991; Quinsey & Chaplin, 1988). Very low erectile responses may result from voluntary suppression of arousal through cognitive strategies or nonattendance to preferred stimuli (Kuban et al., 1997). Attempts to voluntarily produce or enhance penile erection include thinking of sexually arousing themes and intentional perineal musculature contractions (Freund, Watson, & Rienzo, 1988). Prior experience with PPG may also affect test validity, as men who have previously been assessed with PPG testing are thought to be more capable of successfully manipulating their responses (Freund et al., 1988; Golde, Strassberg, & Turner, 2000).

There is support for the usefulness of PPG in the clinical assessment of child molesters. Results of studies indicate that PPG testing discriminated child molesters from other sex offenders and nonoffenders; nonfamilial child molesters from incest offenders; and homicidal child molesters from nonhomicidal child molesters and nonoffenders (Abel, Blanchard, & Barlow, 1981; Abel et al., 1988; Barbaree & Marshall, 1989; Firestone, Bradford, Greenberg, & Nunes, 2000; Lalumière & Quinsey, 1993; Mussack, Bays, & Hindman, 1987; Quinsey, Chaplin, & Carrigan, 1979; Seto et al., 1999,
Mussack et al. (1987) compared PPG responses of 34 heterosexual child molesters and 24 subjects with no known paraphilic interests. A discriminant function analysis correctly classified 77% of the child molesters and 67% of the comparison group. In cross-validation, all the comparison subjects and seven of eight child molesters were correctly classified. Seto et al. (1999) reported that incestuous child molesters showed significantly more sexual interest in child stimuli than did rapists and nonoffenders, but relatively less sexual interest in children than did nonfamilial child molesters. In other research, Seto et al. (2000) examined the PPG responses of 40 adolescent sex offenders against children, 75 young adult sex offenders against children, and a comparison group of 39 young adult rapists and nonoffenders. Although PPG responses to child stimuli of adolescents with female victims were not significantly different from those of the comparison group, comparison subjects showed a lower mean pedophilic index than all other groups of offenders. Firestone et al. (2000) compared PPG responses of homicidal and nonhomicidal child molesters and nonoffenders recruited from the community and found that pedophile index scores of child molesters were significantly higher than those of the nonoffender group. Pedophile assault index scores differentiated homicidal child molesters from nonhomicidal child molesters and nonoffenders.

Although numerous studies have reported the accurate classification of child molesters using PPG, few of the observed differences have been replicated (Abel, Becker, et al., 1981; Baxter, Marshall, Barbaree, Davidson, & Malcolm, 1984; Day, Miner, Sturgeon, & Murphy, 1989; Frenzel & Lang, 1989; Grossman, Cavanaugh, & Haywood, 1992; Lang, Black, Frenzel, & Checkley, 1988; Marshall, Barbaree, & Butt, 1988; Marshall, Barbaree, & Christophe, 1986; Murphy, Haynes, Stalgaitis, & Flanagan, 1986; Quinsey & Chaplin, 1988; Quinsey et al., 1979; Quinsey, Steinman, Bergersen, & Holmes, 1975). Replication is compromised by the heterogeneity of child molesters relative to their sexual offending. As the response of incest offenders to child stimuli is similar to that of nonoffenders (Frenzel & Lang, 1989; Freund, Watson, & Dickey, 1991; Grossman et al., 1992; Marshall et al., 1986; Murphy et al., 1986; Quinsey et al., 1979), it is recognized that incest offenders and nonfamilial child molesters should be considered independent groups (Barbaree & Marshall, 1989; Firestone, Bradford, McCoy, et al., 2000; Marshall, Barbaree, & Eccles, 1991; Quinsey et al., 1979). Similarly, few PPG studies specify whether or not they excluded child molesters who deny having committed an offense, although it has been shown that nonadmitting child molesters often demonstrate normative arousal responses (e.g., Freund & Blanchard, 1989; Freund, Chan, & Coulthard, 1979). In view of these issues, Bradford, Pawlak & Curry (1992) examined two clinical groups comprising 50 heterosexual and 50 homosexual child molesters who admitted to sexually abusing one or more unrelated female or male child 12 years old or younger. The comparison group included 100 male subjects between the ages of 18 and 55 with no reported history of sexual offenses. Fifty comparison subjects were tested using the audiotapes involving male children and 50 with the audiotapes involving female children. All completed the questionnaire package. A discriminant function analysis, using variables derived from PPG testing and questionnaires, indicated that 85% (sensitivity) of the (combined) child molester group and 90% (specificity) of the comparison group were correctly classified. Overall, 87.5% of the total sample ($n = 200$) were correctly classified as opposed to 50% by chance alone. In a subsequent investigation, we compared responses of 28 admitted nonincestuous pedophiles and a community comparison group of 47 carefully screened nonpedophile nonoffenders on various self-report questionnaires and PPG.
testing (Bourget, Le Melledo, Tessier & Curry 2006). Responses of pedophiles were significantly different from those of nonoffenders on PPG testing and on several measures of personality, attitude, and sexual functioning. A discriminant function analysis indicated moderately high sensitivity (67.9%) and high specificity (87.2%). However, PPG responses did not add to the discrimination of the groups.

Contradictory research findings have also led to questions of the validity and usefulness of PPG in the clinical identification of rape proneness. Although several studies have shown that, compared to control subjects, rapists respond more to coercive stimuli than consenting stimuli (Eccles, Marshall, & Barbaree, 1994; Freund, Scher, Racansky, Campbell, & Heasman, 1986; Quinsey & Chaplin, 1984; Quinsey, Chaplin, & Varney, 1981; Rice, Chaplin, Harris, & Coutts, 1994), other studies have found no difference (Baxter et al., 1984; Murphy, Krisak, Stalgaitis, & Anderson, 1984; Seto & Barbaree, 1993). Recent research, however, lends support to the discriminative validity of PPG in the assessment of rapists. Lalumière, Quinsey, Harris, Rice, and Trautrimas (2003) reviewed results of two large meta-analyses of studies of PPG testing for sexual coerciveness (Hall, Shondrick, & Hirschman, 1993; Lalumière & Quinsey, 1994) that calculated a rape index by dividing responses to rape by responses to consenting sex. Overall effect sizes were 0.71 (Hall et al., 1993) and 0.82 (Lalumière & Quinsey, 1994), with differences in effect size related to procedural or comparison group differences. Lalumière et al. (2003) noted that all the reviewed studies reported positive effect sizes and concluded that, as a group, rapists differ from nonrapists in their responses to sexually coercive stimuli. There are indications that rapists and control subjects may best be discriminated using PPG testing with audiotapes that depict extremely violent coercive sex that emphasizes the victim’s suffering (Harris, Rice, Chaplin, & Quinsey, 1999) and are described from the female victim’s perspective (Lalumière et al., 2003).

Abel Assessment of Sexual Interest. The Abel Assessment for Sexual Interest (AASI; Abel, 1997) uses visual reaction time to assess males’ and females’ sexual interest. Visual reaction time is measured based on the premise that sexual arousal interferes with cognitive processing. With this technique a subject views a series of standardized slides that depict clothed models in several categories of age, gender, and deviant sexual behavior and uses a computer (that records visual reaction time in microseconds) to rate his or her subjective levels of arousal to the stimuli. Each series of slides is viewed twice, and the subject controls the amount of time each slide is on display. Visual reaction time responses are compared to self-reported sexual interest to each slide. Subjects are also administered a comprehensive questionnaire designed to gather information about the frequency/content of sexual thoughts, fantasies, and behavior.

The AASI is considered to be a less invasive procedure than PPG and is applicable to both male and female subjects. Results of studies with a sample of admitted adult child molesters (Abel, Huffman, Warberg, & Holland, 1998) and a sample of admitted adolescent child molesters (Abel et al., 2004) indicate that the sensitivity of the AASI is comparable to that of PPG. Letourneau (2002) compared PPG and visual reaction time responses of 57 incarcerated sex offenders and found that both measures accurately identified offenders against young boys but neither accurately identified offenders against young girls. Smith and Fischer (1999) have suggested that the reliability and validity of the AASI are lacking and that further research is needed to establish its utility in the assessment of sex offenders.
Treatment of Sex Offenders

Pharmacological Treatment

The aim of pharmacological intervention for paraphilias is to suppress deviant sexual fantasies, urges, and behaviors and reduce the risk of recidivism and further victimization. The treatment of paraphilias using pharmacological agents is well established (Bradford, 1991, 1994, 1995) and is the treatment of choice for the most serious sexual deviations, such as sexual sadism.

Historically, surgical castration was widely used to treat sexual offenders, and various studies have reported substantial reductions in the rate of reoffense (Bradford, 1983a; Bremer, 1959; Heim & Hursch, 1979; Le Maire, 1956; Ortman, 1980; Stürg, 1968, 1972; Wille & Beier, 1989). Reversible and less intrusive pharmacological treatment of reducing sexual drive and consequently inhibiting sexual behavior includes the antiandrogens and hormonal agents medroxyprogesterone acetate (MPA), cyproterone acetate (CPA), luteinizing hormone–releasing hormone (LHRH) agonists, and selective serotonin reuptake inhibitors (SSRI).

MPA, CPA, and LHRH influence the production and effects of androgens (testosterone and dihydrotestosterone) that are essential for the maintenance of male sexual behavior and reduce plasma testosterone by different mechanisms. Although reducing androgen secretion decreases abnormal (and normal) sexual arousability, the actual mechanisms involved remain poorly understood (Bancroft, 1989).

Medroxyprogesterone Acetate. MPA has been used most often in the treatment of sexual offenders in North America. MPA, a potent progestational agent with antigonadotrophic properties, decreases plasma testosterone levels principally through the induction of testosterone reductase in the liver, which accelerates testosterone metabolism. Testosterone production in the testes is also reduced, due to inhibited secretion of the gonadotropins LH and FSH from the pituitary.

MPA is administered orally (50–300 mg/day) or by intramuscular injection (300 mg/week). Oral doses of MPA have the potential for less severe side effects and other complications (Gottesman & Schubert, 1993). Undesirable side effects are dose related and include weight gain, headache, a hyperinsulinic response to a glucose load, and the potential to aggravate diabetes mellitus. Less common side effects include depression, hepatocellular damage, and thromboembolism (Bradford, 1983b).

Results of several clinical studies, mainly open studies, have demonstrated the effectiveness of MPA in reducing the frequency and intensity of deviant sexual fantasies and urges (Berlin & Meinecke, 1981; Cooper, Sandhu, & Losztyn, 1992; Cordoba & Chapel, 1983; Gagné, 1981; Gottesman & Schubert, 1993; Kiersch, 1990; Langevin et al., 1979; Meyer, Collier, & Emory, 1992; Meyer, Walker, Emory, & Smith, 1985; Money, 1970, 1972; Money et al., 1975; Wiedeking, Money, & Walker, 1979; Wincze, Bansal, & Malamud, 1986). Money et al. (1970, 1972) reported on the use of MPA (300–400 mg/week im) in the treatment of nine paraphilic males. Long-term positive treatment effects were observed in some subjects 8 years later. Wiedeking et al. (1979) followed 11 sexually deviant XYY males for 1 year of treatment on MPA (100–400 mg/week im). Thirty percent of the patients appeared to respond positively to MPA treatment. Gottesman and Schubert (1993) reported on an open trial of low-dosage MPA (60 mg/day) given orally for a period of 15 months. This treatment regime resulted in a significant drop in plasma testosterone levels compared to baseline, and a significant reduction in deviant sexual fantasies and positive
treatment outcome was noted in all seven paraphilic patients. Wincze et al. (1986) completed a double-blind study of three pedophiles treated with MPA in a single-case experimental design. Although results showed that self-reported arousal outside of the laboratory setting was unreliable and inconsistent, PPG measures indicated statistically significant reduced sexual arousal in response to erotic stimuli compared to the placebo phase. There is evidence of the long-term effectiveness of MPA combined with therapy, provided that subjects were compliant with the treatment (Gagné, 1981; Meyer et al., 1992). Gagné (1981) reported on a study of MPA and milieu therapy in male patients with longstanding histories of deviant sexual behavior. Reduced frequency of sexual fantasies and arousal, decreased desire for deviant sexual behavior, increased control over sexual urges, and improvement in psychosocial functioning was seen in 40 of the 48 patients (83%). The improvement in deviant sexual behavior and psychosocial functioning was maintained after treatment ended up to 12 months later. Meyer et al. (1992) assessed the treatment efficacy of intramuscular injections of MPA (400 mg/week) and group and individual psychotherapy in 40 men (mostly pedophiles) over a period ranging from 6 months to 12 years. A control group of 21 patients who had refused pharmacological treatment received psychotherapy only over the same follow-up period. The MPA-treated group had an 18% recidivism rate, and 35% reoffended after MPA was discontinued. The control group had a 58% recidivism rate.

**Cyproterone Acetate.** CPA is a powerful and specific antiandrogen that has been used extensively in the treatment of sexually deviant behavior in Europe and Canada since the 1970s (Bradford, 1983a, 1985, 1995; Bradford & Pawlak, 1987, 1993a, 1993b). This antiandrogen is not available for use in the United States. CPA acts through competitive inhibition at androgen receptors, blocking the effects of testosterone and dihydrotestosterone (Neumann & Kalmus, 1991). CPA also has strong progestational activity, reducing the levels of FSH and LH and resulting in a reduction of all aspects of sexual behavior (including sexual interest, drive, and fantasies).

CPA can be given orally (50–300 mg/day) or by intramuscular injection (dosage varies from about 200–300 mg every 2 or 3 weeks). It is available in vials of 3 ml containing 100 mg/ml. Undesirable side effects are dose related and include depression, fatigue, and shortness of breath. Less common side effects of CPA include nausea, vomiting, and diarrhea. Hepatotoxicity has been reported following treatment over several months (Bradford, 1983b; Hirsch, Kovatz, Bernheim, & Shenkman, 1994).

Controlled studies have provided evidence for the effectiveness of CPA in reducing sexual desire and arousal in sex offenders (Bradford & Pawlak, 1993a; Cooper, 1981; Cooper et al., 1992). Cooper (1981) found that, compared to placebo and no treatment, CPA significantly reduced sexual interest and associated physiological arousal in outpatient men with deviant hypersexuality, with a parallel reduction in plasma testosterone. In a double-blind placebo-controlled comparison of CPA and MPA in 10 inpatient pedophiles, Cooper et al. (1992) found CPA and MPA to be equally effective in reducing serum levels of testosterone, LH, and FSH in the seven patients who completed the study. CPA and MPA were also equally effective in decreasing patients’ sexual fantasies, frequency and pleasure of masturbation, and level of sexual frustration. Bradford and Pawlak (1993a) treated 19 paraphilic men with CPA alternating with placebo in a double-blind study. The subjects were also recidivist sexual offenders who had committed a variety of sexual offenses. Under CPA, subjects reported
a significant reduction of sexual desire, fantasies, arousability, and sexual behavior. The comparison of CPA, placebo, and baseline phases revealed significant reductions of plasma testosterone and FSH.

**LHRH Agonists.** LHRH is a hypothalamic decapeptide that stimulates the release of FSH and LH from the pituitary (Vance & Smith, 1984). LHRH agonists produce a pharmacological “castration” by decreasing testosterone and dihydrotestosterone release through their significant inhibitory effects on gonadotropin secretion.

The LHRH agonists have a prolonged action. They may be administered intramuscularly (e.g., leuprolide 3.75–7.5 mg monthly) or by subcutaneous implants (e.g., goserelin acetate long acting 10.8 mg every 3 months, busereline acetate depot every 2 or 3 months). These agents may result in fewer side effects than MPA and CPA (Grasswick & Bradford, 2002; Miner & Coleman, 2001). Undesirable side effects include weight gain, hot flashes, and gynecomastia and osteoporosis is a long-term risk (Grasswick & Bradford, 2002).

Results of open studies indicate that LHRH agonists significantly reduced the frequency of sexually deviant fantasies, desires, and behavior in paraphilic men (Briken, Nika, & Berner, 2001; Krueger & Kaplan, 2001; Rosler & Witztum, 1998; Thibaut, Cordier, & Kuhn, 1993, 1996). Rosler and Witztum (1998) reported on an uncontrolled open study of 30 paraphilic outpatients with longstanding severe sexual deviation. Subjects received monthly injections of the LHRH agonist analogue triptorelin (3.75 mg) and supportive psychotherapy for a follow-up period of between 8 and 42 months. Plasma testosterone levels fell to castration levels, and all the men showed a decrease in deviant sexual fantasies, urges, and interests while receiving triptorelin. These effects were observed in all the 24 men who continued treatment for 1 year. Thibaut et al. (1993) treated six paraphilic men (pedophilia, sadism, and exhibitionism) with triptorelin (3.75 mg im monthly) concurrently with CPA (200 mg daily) for about 5 months. Two subjects had failed to respond to CPA administered orally (150–300 mg/day), although compliance was questionable in these cases. A marked decrease in deviant sexual behavior was noted in five of the six patients in a follow-up period ranging from 7 months to 3 years. One patient interrupted treatment after 12 months and relapsed 2–3 months later. Krueger and Kaplan (2001) noted that testosterone fell to castration levels in 12 paraphilic patients taking another LHRH agonist analogue, leuprolide, for a period ranging from 6 to 57 months. Patients reported decreased sexually deviant arousal, and one patient reported reduced sadistic fantasies. Briken (2002) and Briken et al. (2001) followed 11 patients with longstanding deviant sexual behavior for 1 year of treatment with leuprolide. No reoffending occurred during leuprolide treatment, and all the patients reported decreased paraphilic activities.

A recent placebo-controlled study (Schober et al., 2005) compared cognitive-behavioral therapy (CBT) with leuprolide in conjunction with CBT in five pedophilic men over 12 months of treatment followed by 12 months of placebo. Leuprolide significantly decreased serum testosterone levels, and CBT with leuprolide significantly reduced pedophilic fantasies, urges, and frequency of masturbation. PPG and visual reaction time (AASI) measures supported self-reports of lowered sexual arousal. Return of physiological arousal was observed to occur as early as 3 months following discontinuation of leuprolide. None of the men reoffended during the 2-year study.

Long-term administration of an LHRH agonist inhibits pituitary–gonadal function. However, for 4–6 weeks these analogues acutely increase the release of LH and FSH and increase serum
testosterone concentration. Effects of the acute increase in testosterone secretion may be offset by the concomitant administration of an antiandrogen such as CPA or flutamide, a nonsteroidal true antiandrogen.

**Selective Serotonin Reuptake Inhibitors.**
SSRIs have been used in the treatment of paraphilias and nonparaphilic hypersexuality for about 15 years. SSRI increase brain serotonin (5-HT) and can cause erectile difficulties, reduced orgasmic and ejaculatory capacity, and a reduction in sexual interest (Baldwin, 1995; Meston & Frohlich, 2000; Preskorn, 2000; Rosen, Lane, & Menza, 1999).

SSRI dosages in paraphilia are generally comparable to those used for depression or obsessive–compulsive disorder, and treatment effects usually occur within 2–4 weeks. Side effects are often transient and include anxiety, decreased sleep and appetite, and nausea. A comparison of treatment compliance and acceptance of serotonergic and antiandrogen medications showed that SSRIs are much more frequently selected by sex offenders (Federoff, 1995).

Although several open-label studies of SSRI treatment outcome have shown reductions in sexual offending behavior over the short term (Bradford, Greenberg, Gojer, Martindale, & Goldberg, 1995; Coleman, Cesnik, Moore, & Dwyer, 1992; Coleman, Gratzer, Nesvacil, & Raymond, 2000; Greenberg, Bradford, Curry, & O’Rourke, 1996; Kafka, 1994; Kafka & Prentky, 1992; Stein et al., 2002), no randomized controlled studies of the efficacy of SSRI in the treatment of paraphilias have been published to date. Kreusi, Fine, Valladares, Phillips, and Rapaport (1992) reported on a double-blind crossover study comparing desipramine and chlorimipramine in 16 paraphilic patients. Half the subjects completed the trial, and the results did not reach statistical significance.

Fluoxetine, sertraline, and fluvoxamine have been used most often and have been shown to be of equal efficacy in their ability to reduce paraphilic urges, fantasies, and behavior (Greenberg et al., 1996). and preliminary findings suggest that nefazodone, a mixed noradrenergic/serotonergic reuptake inhibitor, may be useful in the treatment of nonparaphilic compulsive sexual behavior (Coleman et al., 2000). In an open study of 16 male outpatients with paraphilia or nonparaphilic sexual addictions, Kafka and Prentky (1992) noted clinical improvement with fluoxetine (mean dose 39 mg/day) over a 3-month period in all the patients. A retrospective study of 13 paraphilic men treated with fluoxetine reported similar results in all aspects of sexually deviant behavior (Coleman et al., 1992). Bradford et al. (1995) conducted a 12-week, open-label, dose-titrated study of 20 pedophilic men treated with sertraline (mean dose 131 mg/day). Subjects reported decreases in pedophilic sexual fantasies, urges, and associated masturbation, whereas heterosexual coitus actually showed a small increase during the study. PPG measures indicated a significant reduction of deviant arousal and improved or maintained normophilic arousal. In a retrospective study, Greenberg and Bradford (1997) compared a sample of 95 paraphilic men treated with SSRI and a control group (n = 104) who received only CBT over a 12-week period. Patients treated with SSRI reported significantly fewer and less severe sexually deviant fantasies compared to the control group. Results of another retrospective study of 14 subjects with nonparaphilic compulsive sexual behavior indicate that long-term nefazodone therapy decreased the frequency of sexual obsessions and compulsions without resulting in the undesired sexual side effects inherent to SSRI treatment (Coleman et al., 2000).

**Psychological Treatment**
General goals of psychological treatment are to reduce sexual offending and to encourage
appropriate sexual interactions with adults. A

brief therapy format is the preferred ap-

proach, as it can be offered to a greater number

of offenders, capitalizes on peer feedback and

support, and is cost effective. Based on an

offender’s specific needs, individual counseling

sessions can be an adjunct to group treatment.

CBT appears to be effective in the treatment

of paraphilias (Association for the Treatment of

Sexual Abusers [ATSA], 2001). The technique

cognitive restructuring is used to challenge

sex offenders’ cognitive distortions that help

maintain deviant sexual interests and justify/

minimize sexual victimization of others. As

many sex offenders have been shown to lack

adequate adult social skills (Becker, Abel,

Blanchard, Murphy, & Coleman, 1978), inter-
personal skills training is used to help offenders
develop adequate interactions, initiate and

maintain a conversation, develop communica-
tion skills, initiate and maintain intimate rela-
tionships, and develop empathy toward

others. Covert sensitization and satiation are
aversive techniques aimed at reducing deviant
sexual interests. With covert sensitization the
offender sets up scenarios that link the deviant
behavior with the negative consequences and
aversive consequences of the behavior
(Barlow, Leitenberg, & Agras, 1969; McConaghy,
Armstrong, & Blaszczynski, 1985). The treatment
also sensitizes the offender to the sequences early in the behavioral chain that lead to a
paraphilic act. Masturbatory satiation requires
the offender to repeat his deviant sexual fantasy
in the postorgasmic period, during which it is
very difficult to experience further sexual

arousal accompanied by an act of masturbation
(see Laws & Marshall, 1991). This technique is
accompanied by sexual reconditioning, which

teaches offenders to develop nondeviant sexual
fantasies and increase their nondeviant sexual

interests.

Following a treatment program, relapse pre-
vention therapy can allow sex offenders to fa-
miliarize themselves with their offense chain by
identifying the various components that have

led to offending behavior, such as deviant sex-
ual fantasies, lack of social skills, and cognitive
distortions. Coupled with skills learned in the
treatment program, the expectation is that

offenders will be able to identify the precursors
to their offending behavior and be able to in-
terrupt the relapse process.

Treatment Outcome Studies. Results of re-
search investigating recidivism rates of sex

offenders have been varied. The first reported
review of studies comparing reoffending of
treated sex offenders and untreated controls in-
dicated that treatment was in most cases not ef-
fective in reducing recidivism rates (Furby,
Weinrott, & Blackshaw, 1989). A study of
long-term recidivism of child molesters and
evaluation of treatment effectiveness demon-
strated the ineffectiveness of behaviorally ori-
ented treatment in sex offender recidivism
(Hanson, Steffy, & Gauthier, 1993). Conversely,
a meta-analysis of 12 treatment studies (Hall,
1995) reported the effectiveness of pharma-
ological, relapse prevention, and CBT interven-
tions with sex offenders. However, the
strongest treatment effects determined by the
analysis were no longer significant when drop-
outs were eliminated from comparisons with
treatment completers (Hall, 1995). Quinsey,
Khanna, and Malcolm (1998) reported that
a CBT program was associated with increased
sexual recidivism. Although others have
noted a clinically significant reduction in recid-
vism among treated sex offenders following
CBT-based treatment (Gallagher, Wilson,
Hirschfield, Coggeshall, & MacKenzie, 1999;
Nicholachuk, Gordon, Gu, & Wong, 2000),
there is some question that employed method-
ologies may have resulted in inflated treatment
effects (Hanson et al., 2002).

More recently, however, Hanson et al. (2002)
conducted a meta-analysis of 43 studies (total of
5,078 treated offenders and 4,376 untreated offenders) of the effectiveness of psychological treatment for sex offenders. Results of the analysis showed that the sexual recidivism rate was lower for the treated offenders (12.3%) than the untreated offenders (16.8%), and treatment effects for general recidivism were similar to the effects for sexual recidivism. Hanson et al. determined that reduction in sexual and general recidivism was demonstrated in (a) treated versus untreated individuals; (b) individuals receiving current treatment (e.g., CBT and systemic groups) versus treatments prior to 1980; and (c) program completers versus dropouts for all types of programs. Hanson et al. conclude that their analysis indicated the overall effectiveness of psychological treatment in reducing recidivism of sex offenders, but note the need for conclusive evidence based on results of well-designed and methodologically sound studies.

As sexual offending is clearly a major problem with legal, social, and public health safety ramifications, effective assessment and treatment methods are of vital importance. There have been significant advances regarding the neurobiology and neuropharmacology of sexual behavior in recent years, and important research conducted to date has led to a better understanding of the physiological and psychological dynamics underlying abnormal sexual behavior. There is promising research aimed at improving the validity and reliability of assessment of sex offenders, including the development of noninvasive investigational procedures that make use of new information technology. One such procedure designed to measure sexual preferences is based on virtual reality and eye-tracking technologies (Renaud et al., 2005). Preliminary results suggest the potential of this procedure in the assessment and treatment of sex offenders (Renaud, Rouleau, Granger, Barsetti, & Bouchard, 2002). Although results of more recent analyses of recidivism studies are encouraging, further methodologically sound research is needed to improve the evidence-based knowledge of sexual disorders.

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References

Association for the Treatment of Sexual Abusers (2001). Practice Standards and Guidelines for Members of the Association for the Treatment of Sexual Abusers (pp. 24–25). Beaverton (OR): Association for the Treatment of Sexual Abusers.


Kafka, M. P. (1994). Sertraline pharmacotherapy for paraphilias and paraphilia-related disorders:


