CHAPTER 9

Sex Addiction: An Overview*

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HISTORICAL CONTEXT

In his 1812 book, *Medical Inquiries and Observations Upon the Diseases of the Mind*, Benjamin Rush recounted a case of a man whose "excessive" sexual appetite caused him psychological distress to the point of requesting that he be medically rendered impotent (Rush, 1812). In 1886, German psychiatrist Dr. Richard von Krafft-Ebbing argued that Pathological Sexuality is a bona fide psychiatric illness. He wrote,

> *It (sex) permeates all (of the patient's) thoughts and feelings, allowing of no other aims in life, tumultuously, and in a rut-like fashion demanding gratification without granting the possibility of moral and righteous counter-presentations, and resolving itself into an impulsive, insatiable succession of sexual enjoyments.... This pathological sexuality is a dreadful scourge for its victim, for he is in constant danger of violating the laws of the state and of morality, of losing his honor, his freedom and even his life. (Krafft-Ebbing, 1886, 1965)*

Nearly a century later, British psychologist Dr. Jim Orford argued that Hypersexuality should be included into the spectrum of addictive disorders. In the *British Journal of Addictions*, Orford wrote,

> *It is argued that a theory of dependence must take into account forms of excessive appetitive behavior which do not have psychoactive drugs as their object. Excessive heterosexuality is an important but neglected example. Hypersexuality as an entity has been criticized on a number of grounds. These problems of concept and definition are paralleled in discussions of other excessive behaviors such as excessive drinking and excessive gambling. (1978)*

Though Orford argued for the theory of Hypersexual Dependence, he noted three problems with the dependence model of sex that were also noted by Carnes (1994) and are still relevant today:"(1) it is difficult to separate normal and abnormal sexual behavior; (2) it is difficult to determine

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when loss of control occurs; and (3) it is difficult to assess the role of culture in this" (as cited in Carnes, 1994).

Caution in diagnosing Sex Addiction (SA) or related disorders is rightly justified because the research is incomplete. Furthermore, the vast majority of those who have multiple affairs, are promiscuous, or take part in novel expressions of sexuality are not sexually addicted. Levine (2010) performed a retrospective chart review to analyze the sexual patterns of 30 men who had been referred for problems with sexual addiction. He reported that only 25% of his case studies met the criteria of an addictive pattern.

PREVALENCE

Currently, the prevalence of SA is most often cited in between 3% and 6% of the general population (Carnes, 1991). The occurrence rates of SA vary in the literature depending on characteristics examined such as gender, sexual orientation, age, and the diagnostic criteria implemented in the study. In the clinical convenience sample of the American population by Kinsey, Pomeroy, and Martin (1948), male hypersexuality, defined as seven or more orgasms per week—a normal more consistent with normal sexuality today—identified hypersexuality in 7.6% of males between adolescence and age 30. Traeen, Spitznogle, and Beverfjord (2004) narrowed their research to pornography dependence in the adult Norwegian male population, and found that 1% of their sample masturbated to ejaculation twice or more per day while viewing pornography. A Swedish study of males and females in the general population found that 5%–10% of most sexually active respondents reported higher levels of co-occurring addictions, risk-taking behaviors, distress and psychiatric symptoms, suggesting a subgroup of the most sexually active who may have psychosocial impairments (Langstrom & Hanson, 2006).

SA-RELATED DIAGNOSES IN THE ICD AND DSM

Although psychological writings about excessive sexual behavior date back 200 years, the medical manuals have been slow to name diagnoses. Efforts to develop a diagnosis have met with understandable resistance because of the lack of scientific data. For instance, the *International Classification of Diseases* (*ICD-10,* World Health Organization, 2007) lists a diagnosis called "excessive sexual drive" and subdivides it into "nymphomania" for females and

"satyriasis" for males. However, according to Vroege et al. (1998), members of the *ICD-10* task force were unable to come to consensus about the set of criteria for this category, as unlike the other sexual dysfunctions, there is a lack of explicit research criteria for excessive sexual drive. Vroege and colleagues argued that in future diagnostic systems, the sexual disorders should be subdivided by the phases of the sexual cycle. They stated that excessive sexual drive is largely a desire disorder, as opposed to an arousal or orgasm-based disorder, and that the current ICD nosology lacks sufficient scientific evidence.

In the American Psychiatric Association's *DSM-III-R* (American Psychiatric Association, 1987), the term *sexual addiction* fell under the diagnostic category of "Sexual Disorder Not Otherwise Specified." The term *sexual addiction* was removed from the fourth edition of the manual in 1997, primarily because of a lack of empirical research and consensus validating sexual behaviors as a bona fide behavioral addiction (Kafka, 2010). The place of sex addiction in the fifth and most recent version of the DSM is discussed later in this chapter.

Writing in the popular media, psychologist Dr. Patrick Carnes (1991) identified 10 clinical signs that individuals with SA most often endorse: Compulsive Behavior (94%), Loss of Control (93%), Efforts to Stop (88%), Loss of Time (94%), Preoccupation (77%), Inability to Fulfill Obligations (87%), Continuation Despite Consequences (85%), Escalation (74%), Social, Occupational and Recreational Losses (87%), and Withdrawal (98%). Carnes developed the Sexual Addiction Screening Test (SAST). When 13 was used as the cut-off score, 96.5% of respondents were correctly classified as sexually addicted when compared to diagnostic interviewing, while only 3.5% scoring 13 or above were undiagnosed (Carnes, 1991). Based on a convenience sample of 772 male sex addicts, 177 female sex addicts, and 141 controls, Carnes developed behavioral subtypes that were significantly higher in sex addicts than controls. Carnes identified Fantasy Sex (18%), Voyeurism (18%), Exhibitionism (15%), Seductive Role Sex (21%), Intrusive Sex (e.g., boundary violations; 17%), Anonymous Sex (18%), Trading Sex (12%), Paying for Sex (15%), Pain Exchange (16%), and Exploitive Sex (13%). Carnes noted that male sex addicts were significantly more likely than female sex addicts to engage in Voyeuristic Sex, Intrusive Sex, Exhibitionism, Anonymous Sex, Paying for Sex, and Exploitative Sex. Female sex addicts were more likely than male addicts to engage in Fantasy Sex, Seductive Role Sex, Trading Sex, and Pain Exchange and on par with addicted men in the areas of Exhibitionism and Intrusive Sex (Carnes, Nonemaker, & Skilling, 1991).

In psychiatry, there have been many efforts to formulate an SA-related diagnosis for clinical work and research. Psychiatrist Ariel Goodman (1998)

proposed criteria for SA based on the prevailing diagnostic criteria for Substance Abuse Disorders such as tolerance, withdrawal, and interference with social and occupational functions (see Table 9.1).

Carnes (1983, 1991, 1994, 2005**)** proposed 10 diagnostic criteria for Sex Addiction, also adapting the principles of chemical addiction to sexual behavior (see Table 9.2).

To further investigate and validate the diagnosis, researchers began to develop testing instruments. Carnes accumulated data on more than 1,600 cases (1991); developed several self-report screening measures such as a 25-item Sexual Addiction Screening Test (SAST); and developed a brief screening test (Carnes et al., 2011) that was similar to the CAGE, a 4-item assessment for alcohol dependency used to assess whether or not the patient had been experiencing problems with Cutting down, someone Annoying

Table 9.1 Sexual Addiction Proposed Diagnostic Criteria*

A maladaptive pattern of sexual behavior, *leading to clinically significant impairment or distress,* as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

(1) Tolerance, as defined by either of the following:
  (a) A need for markedly increased amount or intensity of the sexual behavior to achieve the desired effect.
  (b) Markedly diminished effect with continued involvement in the sexual behavior at the same level of intensity.
(2) Withdrawal, as manifested by either of the following:
  (a) Characteristic psychophysiological withdrawal syndrome of physiologically described changes and/or psychologically described changes upon discontinuation of the sexual behavior.
  (b) The same (or a closely related) sexual behavior is engaged in to relieve or avoid withdrawal symptoms.
(3) The sexual behavior is often engaged in over a longer period, in greater quantity, or at a higher level of intensity than was intended.
(4) There is a persistent desire or unsuccessful efforts to cut down or control the sexual behavior.
(5) A great deal of time is spent in activities necessary to prepare for the sexual behavior, to engage in the behavior, or to recover from its effects.
(6) Important social, occupational, or recreational activities are given up or reduced because of the sexual behavior.
(7) The sexual behavior continues despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the behavior.

*Goodman, 1998, p. 233.

him about drinking, feeling Guilty about drinking, and needing an Eye-opener drink in the morning in order to deal with overnight withdrawal or hangover effects (Ewing, 1984).

Terms such as *compulsive sexual behavior* and *impulsive sexual disorder* were developed to describe SA-related behaviors, and measures such as the Sexual Compulsivity Scale were utilized for research. Coleman, Raymond, and McBean (2003) wrote that compulsive sexual disorders are characterized by sexual urges, behaviors, and thoughts that are both recurrent and intense. The symptoms cause significant distress across various other areas of functioning and cannot be better accounted for by a mental health disorder or medical condition.

Mick and Hollander (2006) suggested the term *Impulsive-Compulsive Sexual Behavior* for patients who demonstrated an impulsive component in initiating the cycle, and a compulsive component in the persistence of the dysfunctional behavior.

Table 9.2 Sexual Addiction Diagnostic Criteria*

A. A minimum of three criteria met during a 12-month period:
- **1)** Recurrent failure to resist impulses to engage in specific sexual behavior.
- **2)** Frequent engaging in these behaviors to a greater extent or longer duration than intended.
- **3)** Persistent desire or unsuccessful efforts to stop, to reduce, or to control behaviors.
- **4)** Inordinate amount of time spent in obtaining sex, being sexual, or recovering from sexual experiences.
- **5)** Preoccupation with the behavior or preparatory activities.
- **6)** Frequently engaging in the behavior when expected to fulfill occupational, academic, domestic, or social obligations.
- **7)** Continuation of the behavior despite knowledge of having a persistent or recurrent social, financial, psychological, or physical problem that is caused or exacerbated by the behavior.
- **8)** Need to increase intensity, frequency, number, or risk of behaviors to achieve the desired effect or diminished effect with continued behaviors at the same level of intensity, frequency, number, or risk.
- **9)** Giving up or limiting social, occupational, or recreational activities because of behavior.
- **10)** Distress, anxiety, restlessness, or irritability if unable to engage in the behaviors.

B. Has significant personal and social consequences (such as loss of partner, occupation, or legal implications).

*Proposed by Carnes (1991; 2005b).

In 2010 and 2011, two SA-related diagnoses were considered by the *Diagnostic and Statistical Manual of Mental Disorders,* Fifth Edition (*DSM-5*) Work Groups of the American Psychiatric Association. *Hypersexual Disorder* was studied by the Sexual and Gender Identity Disorder Working Group, and *Internet Addictive Disorder* was addressed by the Addiction and Related Disorders Working Group. Ultimately, both diagnoses were not included in the *DSM-5*.

Kafka (2010), writing on behalf of the Sexual and Gender Identity Disorder Working Group, proposed the diagnosis of Hypersexual Disorder (see Table 9.3). The diagnosis did not require dependence, tolerance, and withdrawal. Kafka's criteria incorporated other key aspects of addiction such as unsuccessful efforts to cut down, greater use than intended,

Table 9.3 Proposed Hypersexual Disorder Diagnostic Criteria*

A) Over a period of at least 6 consecutive months, recurrent and intense sexual fantasies, sexual urges, or sexual behaviors in association with four or more of the following five criteria:
  1) Excessive time consumed by sexual fantasies and urges, and by planning for and engaging in sexual behavior.
  2) Repetitively engaging in these sexual fantasies, urges, and behavior in response to dysphoric mood states (e.g., anxiety, depression, boredom, irritability).
  3) Repetitively engaging in sexual fantasies, urges, or behaviors in response to stressful life events.
  4) Repetitive but unsuccessful efforts to control or significantly reduce these sexual fantasies, urges, and behavior.
  5) Repetitively engaging in sexual behaviors while disregarding the risk for physical or emotional harm to self or others.

B) There is clinically significant personal distress or impairment in social occupational or other important areas of functioning associated with the frequency and intensity of the sexual fantasies, urges, and behaviors.

C) These sexual fantasies, urges, and behavior are not due to direct physiological effects of exogenous substances (e.g., drugs of abuse or medications) or to manic episodes.

D) The person is at least 18 years of age.

Specify if: Masturbation, Pornography, Sexual Behavior With Consenting Adults, Cybersex, Telephone Sex, Strip Clubs

Specify if in Remission: No Distress, Impairment, or Recurring Behavior and in an Uncontrolled Environment, and state duration of remission in months in a Controlled Environment.

*Proposed by Kafka (2010).

and serious social and occupational consequences. Ultimately, the *DSM-5* committee decided that there was not enough research to include Hypersexual Disorder as a diagnosis in the DSM-5.

SCREENING INSTRUMENTS FOR SA

In 2010, Carnes revised the Sexual Addiction Screening Test (SAST) to assess male homosexual and female heterosexual populations and include core addiction dimensions of (1) Preoccupation about sex, (2) Loss of Control despite problems, (3) Relationship Disturbances caused by sexual behavior, and (4) Affect disturbances such as anxiety and depression related to sexual behaviors. The instrument was studied in several populations such psychotherapy patients, college students, and veterans, and has demonstrated acceptable reliability with alphas in four studies ranging from 0.85 to 0.95 (Hook, Hook, Davis, Worthington, & Penberthy, 2010). The Sexual Addiction Screening Test - Revised (SAST-R) has 20 core items and subscales of 25 items and has shown reliability, with a cutoff of 6 (Carnes, Green, & Carnes, 2010). The SAST and SAST-R demonstrated good internal consistency and reliability and have been utilized by criminal justice, treatment centers, and educational programs.

Due to the length of the SAST-R (45 items), it was not considered suitable for certain clinical settings such as an emergency room. To meet the need for brevity in these types of settings, a screening instrument called PATHOS was developed to aid in the identification of those who may have sexual addiction. Similar to the CAGE (Ewing, 1984), this mnemonic six-item screener (extracted from the SAST-R) was found to have excellent to acceptable internal consistency (0.94–0.77) and using the cut-off score of 3, demonstrated respectable sensitivity and specificity ratings. See Table 9.4 for a list of PATHOS items.

Table 9.4 PATHOS Items

1)	Do you often find yourself preoccupied with sexual thoughts? (Preoccupied)
2)	Do you hide some of your sexual behavior from others? (Ashamed)
3)	Have you ever sought help for sexual behavior you did not like? (Treatment)
4)	Has anyone been hurt emotionally because of your sexual behavior? (Hurt)
5)	Do you feel controlled by you sexual desire? (Out of control)
6)	When you have sex, do you feel depressed afterwards? (Sad)

CYBERSEX

Aside from Problem Gambling, Internet Gaming Disorder will be added to the *DSM-5* appendix as a provisional behavioral addiction worthy of further research. Tao (2010) and others unsuccessfully argued for inclusion in the *DSM-5* of an Internet Addiction Disorder (IAD) that shares key features with substance abuse, such as salience (emotional and cognitive processing), mood modification, tolerance, withdrawal, conflict, and relapse. Tao (2010) proposed eight criteria for IAD: (1) preoccupation, (2) withdrawal, (3) tolerance, (4) unsuccessful efforts to control use, (5) continued use despite negative consequences, (6) loss of interest in non-Internet activities, (7) use to escape dysphoria, and (8) the deception of others such as family members and therapists. Of great interest to the SA community, IAD includes the subcategory of Cybersex Addiction. Since the 1990s, the SA community has been addressing the addictive potential of the Internet, particularly when it concerned pornographic material. In the SA literature, Cybersex is commonly referred as the "crack cocaine of sexual compulsivity" based on its ability to quickly engage the user and keep him focused on the material for extended periods of time (Cooper, Putnam, Planchon, & Boies, 1999). Vulnerable patients often report becoming lost in the trance of Internet pornography as they scroll through sites, holding off orgasm for hours at a time and spending a considerable amount of money on live chats—all this despite their intentions and promises to stop looking at Internet pornography.

COMORBIDITY IN SA-RELATED DISORDERS

Studies of the sexually disordered population reveal multiple disorders in the clinical population. Langstrom and Hanson's (2006) study of the general population in Sweden found that 5%–10% of most sexually active respondents reported higher levels of co-occurring addictions, risk-taking behaviors, and psychiatric symptoms. Co-occurring psychiatric disturbances and addictive disorders are common in the SA population.

SA has been associated with affect dysregulation (Samenow, 2010), depression and anxiety (Bancroft, 2009; Kaplan & Kruger, 2010), impulsivity (Miner, Raymond, Mueller, Lloyd, & Lim, 2009; Raymond, Coleman, & Miner, 2003), loneliness (Yoder, Virden, & Amin, 2005), low self-worth and insecure attachment styles (Earle & Earle, 1995; Zapf, Greiner, & Carroll, 2008), personal distress (Kafka & Henna, 1999; Kingston & Firestone, 2008),

risk-taking behaviors such as substance abuse (Kaplan & Kruger, 2010; Sussman, 2007), and self-hatred and shame (Kaplan & Kruger, 2010; Kort, 2004; Reid, Harper, & Anderson, 2009).

Utilizing the Mood and Sexuality Questionnaire in studies of 919 heterosexual males (Bancroft, Janssen, Strong, Carnes, et al., 2003) and 662 gay men (Bancroft, Janssen, Strong, & Vukadinovic, 2003), it was found that only a minority of the sample reported greater interest in sexual thoughts or activities when depressed or feeling anxiety (15%–25%). The levels of distress in this minority population reflected levels of those that have problems with anxiety (Bancroft & Vukadinovic, 2004).

Employing the Sexual Addiction Screening Test (SAST) and the Experiences in Close Relationships-Revised (ECR-R), Zapf, Greiner, and Carroll (2008) examined attachment styles in sexually addicted adult males. The ECR-R measures adult romantic attachment styles on measures of anxiety and avoidance to produce four possible results of secure attachment style, preoccupied attachment style, fearful-avoidant attachment style, and dismissing-avoidant attachment style. Of the 52 participants examined, 32 were identified as sex addicts according to the SAST results, and 20 were defined as nonaddicts based on SAST results. Results of the study showed the ECR-R supported their hypothesis with 40% of the nonaddict population reporting a secure attachment style, while of the sexually addicted population only 8% reported a secure attachment style. In contrast, the sexually addicted population reported more frequently identifying with higher levels of avoidance and anxiety, and hence resulted in higher percentages in preoccupied, dismissing, and fearful-avoidant attachment styles than nonaddicts.

Reid and Carpenter (2009) investigated the differences between male hypersexual patients (n = 152) and normative group responses to the Minnesota Multiphasic Personality Inventory-2 (MMPI-2). Their findings showed "nearly all validity and clinical scales are higher for the hypersexual sample than they are for the norming sample." However, these elevations generally did not fall within the clinical range, and approximately one-third of the tested population had normal profiles. MMPI-2 clinical scales with the most frequent elevations for the hypersexual population included 7 (Psychasthenia) characterized by phobias, obsessions, compulsions, or excessive anxiety; 8 (Schizophrenia); 4 (Psychopathic deviate) characterized by general maladjustment, unwillingness to identify with social convention and norms, and impulse-control problems; and 2 (Depression), respectively. They further noted that within this study they did not find overall support for addictive tendencies or classifying the patients as obsessive or

compulsive, but that their cluster analysis "provided evidence to support the idea that hypersexual patients are a diverse group of individuals" (p. 307). These findings are similar to Levine's (2010) retrospective multiple-case analysis that also calls into question the level of psychopathology among those with problematic sexual behaviors.

In a small convenience sample that included sexual offenders, comorbidity was studied in 88 men with paraphilias (i.e., socially deviant and aggressive forms of sexual impulsivity) and 32 men with paraphilia-related disorder (i.e., normophilic Hypersexuality). There were no differences in the comorbidity between paraphilic and normophilic groups in the categories of mood disorders (71.6%), dysthymic disorder (55%), anxiety disorders (38.3%), social phobia disorder (21.6%), psychoactive substance abuse (40.8%), alcohol abuse (30.0%), impulse disorder NOS (25%), and reckless driving (16.7%). However, Attention Deficit Disorder was significantly higher in paraphilia disorder (50%) than paraphilia-related disorder (16.7%) (Kafka & Hennen, 2002).

Among a sample of 1,603 sex addicts, 69% of heterosexual men, 79% of heterosexual women, and 80% of homosexual men reported a lifetime prevalence of other addictive and abusive behaviors, ranging from minor to serious. Forty percent of heterosexual men, 40% of heterosexual women, and 60% of homosexual men engaged in sexual acting out while simultaneously involved in other addictive or abusive behaviors such as substance abuse, gambling, or eating disorders (Carnes, Murray, & Charpentier, 2005).

In a study of pathological gamblers, Grant and Steinburg (2005) found that 19.6% of their subjects also met the criteria for Compulsive Sexual Behavior (CSB). Seventy percent of the subjects who met the criteria for both disorders reported that CSB had preceded their gambling problems.

ADDICTION INTERACTION DISORDER

Multiple addictions are so common in this population that in the SA community there is the term *Addiction Interaction Disorder,* which means that multiple addictive behaviors exist as part of a single illness (Carnes, Murray, & Charpentier, 2005). These behaviors interact as reinforcements and become part of one another. They, in effect, become packages in which the whole is greater than the sum of the parts. A common Addiction Interaction Disorder is the combination of cocaine abuse, alcohol abuse, and sexual behaviors that may occasionally rise to the level of SA (Rawson, Washton, Domier, & Reiber, 2002). At most

substance abuse treatment centers, individuals seeking treatment for the combination of these behaviors would receive therapy only for substance abuse and dependence. As a core addictive process, the unaddressed SA will sometimes be the reason an individual relapses with substances and sex.

THE POSSIBLE NEUROSCIENCE OF SA

Changes in the phenomenology of addiction, now allowing for the inclusion of behavioral addictions, are founded on developments in neuroscience. Chapter 1 presented the prevalent theories of chemical addiction that may also support the existence of sex addiction and other behavioral addictions. The Reward/Executive–Function Theory supposes that alterations in the mesolimbic system and medial frontal cortex perpetuate the addictive cycle. Additionally, neuropsychological models propose that addiction results from vulnerabilities in the organism's decision-making process and focus. Finally, contemporary neurobiological theories explain addiction as involving cellular memory in the consolidation of memories at the synaptic level, known as long-term potentiation (LTP).

SA could conceivably develop through neurobiological mechanisms like those proposed for the protypical behavioral addiction, Problem Gambling (PG). Grant and Steinberg (2005) found compulsive sexual behavior occurred in 19.6% of patients with PG, suggesting similar biological and psychological processes are associated with both SA and PG. More importantly, in 70.5% of those with co-occurring disorders, compulsive sexual behavior predated pathological gambling, suggesting that the SA and PG may share similar fundamental brain dysregulations. A unitary hypothesis is supported by the fact that patients treated with dopaminergic agents for idiopathic Parkinsonism sometimes developed new onset pathological gambling and sexual compulsivity (Bostwick, Hecksel, Stevens, Bower, & Ahlskog, 2009). In addition, as discussed later, both PG and SA may be treated by the same investigational medication, naltrexone (Bostwick et al., 2009).

There is little convincing data that currently demonstrates a neurobiological pathway for SA. Pitchers et al. (2010) studied sexual behavior in rats exposed to amphetamines and found that sexual behavior enhanced the amphetamine locomotor response after 1 week of abstinence, supporting the notion that stimulants act synergistically with sexual behavior. After

examining the rats' brains, they found morphological changes, increased dendritic spines in the shell and core of the nucleus accumbens, after 1 week, but not after 1 day, of sexual encounters. Hence, sexually induced morphological changes occur in response, or at least are enhanced, by abstinence, suggesting a mechanism for how sexual urges, or perhaps even sexual addiction, may become encoded in memory after abstinence.

Genetic data may ultimately help explain abnormalities in sexual desire. In humans, the heritability of sexually promiscuous behavior in both genders has been proposed to be 33% based on monozygotic and dyzygotic twin studies (Zietsch, Verweij, Bailey, Wright, & Martin, 2010). The effects of oxytocin and vasopressin may help explain fidelity and pair-bonding (Aragona et al., 2006; Carter, 1998; Depue & Morrone-Strupinsky, 2005; Fisher, Aron, Mashek, Li, & Brown, 2002; Insel & Young, 2001; Melis & Argiolas, 1995). Vasopressin 1a gene (AVPRIA) has been associated with marital satisfaction and pair-bonding in one study (Walum et al., 2008), but not another (Cherkas, Oelsner, Mak, Valdes, & Spector, 2004). Irregularities of the dopamine system may help explain excessive sexual behaviors. Genes mediating dopamine transmission, specifically the D4DR receptor, are thought to be associated with seeking novel stimulation, particularly when there are seven or more repeats in the allele (Chen, Burton, Greenberger, & Dmitrieva, 1999; Ding et al., 2002; Harpending & Cochran, 2002; Wang et al., 2004). Long alleles may predispose for Attention Deficit Hyperactivity Disorder (Li, Sham, Owen, & He, 2006), alcoholism (MacKillop, Menges, McGeary, & Lisman, 2007; Ray et al., 2008), financial risk taking (Dreber et al., 2009), disinhibition and impulsivity (Congdon, Lesch, & Canli, 2008), and initiating sexual activity (Eisenberg, 2007). Utilizing self-reports of sexual behavior history and buccal wash genotyping in 181 young adults, Garcia et al. (2010) found subjects with at least one 7-repeat allele (7R+) in D4DR were more likely to have had a one-night stand, yet found no significant differences in overall sexual infidelity.

The few brain imaging studies of "normal" human subjects during sexual arousal seem to implicate the same areas associated with chemical addictions and suggest that the frontal areas of the brain may exert control and exercise reason over the posterior reward centers (Georgiadis, 2012; Sescousse, Redouté, & Dreher, 2010). Brain scan studies of sexual dimorphism may help us understand the differences between males and females, particularly when it comes to sexual acting-out. For instance,

one sexual activity-related PET study demonstrates that male arousal is more often associated with activation of the visual cortices of the brain—even when the subjects' eyes are closed (Georgiadis et al., 2010). Female arousal is associated with stronger activity in left dorsal fronto-parietal regions, including premotor areas and posterior parietal areas (Georgiadis et al., 2009). During orgasm, the male and female brain functioning appears similar with activation in the anterior lobe of the cerebellar vermis and deep cerebellar nuclei, and deactivations in the left ventromedial and orbitofrontal cortex. Although promising and intriguing, today's PET and fMRI studies do not yet provide any clinical guidance in treating sexual compulsivity.

In a preliminary study of 16 males, Miner et al. (2009) used the Compulsive Sexual Behavior Inventory, utilized an impulse-control task (computerized Go–No Go), and administered an MRI technique called diffusion tensor imaging to examine the potential of white matter disorganization in the frontal lobes of men with Compulsive Sexual Behavior (CSB). The neuroimaging scans were inconclusive and inconsistent with neuroanatomical correlates of impulse-control disorders (p. 146).

TREATMENT OF SEX ADDICTION

Psychotherapy

Regardless of the label given to these patients—compulsive, impulsive, hypersexual, or addicted—treatment generally consists of approaches that have been popularized for substance addiction such as group and individual therapy; motivational interviewing; cognitive-behavioral approaches to identify triggers; dialectical behavioral techniques to manage cravings; relapse prevention strategies; insight-oriented therapy to identify deeper causes; family therapy to resolve conflicts; exercise and nutrition; treatment of comorbid mental illness and addictions; referral to appropriate 12-step-based recovery groups; and psychopharmacology aimed at diminishing dysfunctional sexual behaviors, reducing cravings, improving the outcome during desired sexual experiences, and treating associated psychiatric disorders.

Throughout the United States, numerous inpatient and outpatient treatment centers use an addiction model to treat sexual compulsivity and addiction. The reader is referred to basic addiction texts such as *Clinical Textbook of Addictive Disorders,* Third Edition, by Frances, Miller, and Mack (2005) for an understanding of the approaches to addiction.

Carnes has developed a task-centered approach program with a series of operationalized workbooks appropriate for treating SA patients (Carnes, 2005). These workbooks provide homework assignments and readings for the first year of therapy.

What may surprise clinicians is that SA patients are generally not good at sex. They function poorly in the bedroom. Sex addicts feverishly pursue their dysfunctional sexual behaviors yet generally have sexual difficulties with intimate partners, healthy sexual encounters, and/or long-term partners. Therefore, in addition to addiction treatment, they need sex therapy. Premature ejaculation, erectile dysfunction, anorgasmia, and "sexual anorexia" (i.e., extended periods when the addict has no sexual activity) are common (Carnes, 1997). Masters, Johnson, and Kolodny (1988), Helen Singer Kaplan (1974), and others have developed Sex Therapy for sexual disorders; however, these behavioral interventions need to be modified when working with the sexually addicted client. Sex Therapy cannot commence until patients have their dysfunctional behaviors under control.

Another surprise for clinicians is how treating the sex addiction may worsen the marriage or relationship. Steinglass (1980) noted how in families in which there is alcoholism, alcohol may be the "glue" that enables the couple to meld, tolerate dysfunctional marriages, and/or avoid personal problems. Similarly, recovery from SA puts new demands on marital relationships. Significant others of sex addicts may suffer from sexual anorexia, sexual aversions, and/or sexual dysfunctions, explaining why partners have found it "acceptable" to live with the frequent lack of sexual intimacy. As discussed, SA patients themselves often have sexual disorders. Therefore, conjoint treatment is generally required to promote healthy relationships and satisfying sexual experiences during recovery.

12-Step Peer Support Groups

Peer-support groups are helpful. There are five self-help "fellowships" modeled after Alcoholics Anonymous: Sex Anonymous, Sexaholics Anonymous, Sex Addicts Anonymous, Sex and Love Addicts Anonymous, and Sexual Compulsives Anonymous. Partners and couples may attend S-Anon Family Groups, Co-Dependents of Sex Addicts, and Recovering Couples Anonymous. All these fellowships follow the Alcoholics Anonymous prototype of the 12 steps and 12 traditions, and recovery is viewed as a spiritual awakening, although spirituality can be

idiosyncratic for different participants. Even within the same fellowship, individual groups vary according to the local culture, sexual orientation of the participants, and the group's approach to abstinence, celibacy, and masturbation. Therefore, the treating clinician needs to familiarize himself or herself with the local fellowship before making a recommendation to the patient.

Pharmacological Treatment

Pharmacologic treatment can be very helpful. Traditional medical treatment of associated anxiety and mood can be useful with the caveat that the clinician needs to be cognizant of the sexual side effects that may help or hinder the SA patient.

Citalopram has demonstrated a moderate and significant reduction in masturbation and pornography use (Muench, et al., 2007; Tosto, Talarico, Lenzi, & Bruno, 2008). Open-label trials and anecdotal reports support the use of medications that increase serotonin such as the selective serotonin reuptake inhibitor (SSRI) and serotonin/norepinephrine reuptake inhibitor (SNRI) antidepressants to reduce desire, arousal, and orgasm (Kafka, 2010). Antidepressants may be contraindicated if there is a history of adverse reactions or medication-induced mania.

Anti-anxiety agents other than SSRIs and SNRIs, may be helpful in SA patients whose sexual acting out is triggered by anxiety. Benzodiazepines need to be judiciously prescribed in the SA population because of their tendency toward multiple addictions, while the authors' clinical experience suggests nonaddictive anxiolytics such as buspirone may be useful. The treating clinician should know that theoretically, at least, the prodopaminergic buspirone may increase sexual desire.

Antipsychotics may be indicated when disturbed reality testing, thought disorders, or severe agitation are prominent clinical features. Antipsychotics may exert their benefit by reducing sexual desire, arousal, and orgasm.

SA patients often present with high-risk and high-intensity sexual behaviors, and patients may have a clinical presentation suggestive of bipolar disorder. Mood stabilizers and anti-impulsive medications such as lithium, valproic acid, carbamazepine, and lamotrigine may be useful, particularly when manic or impulsive features are prominent or when promiscuity is a major presenting feature. The mood stabilizers are also associated with sexual suppression and may therefore exert their benefit partly or entirely due to their sexual side effects.

Attention Deficit Hyperactivity Disorder (ADHD) is frequently associated with sexual risk taking. In particular, patients who become absorbed in Internet pornography and cybersex activities may demonstrate distractibility and search for novel stimuli, which are characteristic signs of ADHD. Stimulants, such as methylphenidate and dextroamphetamine, may be indicated for highly distractible and thrill-seeking individuals with ADHD (personal communication between Martin Kafka and Ken Rosenberg, February 2011), although the dopaminergic stimulants carry the risk of addiction and increasing sexual desire, a nonaddictive medication, such as atomoxetine, may be useful.

Naltrexone, commonly used in addiction psychiatry for chemical addiction, has been reported to be effective in reducing Problem Gambling and may be effective for some patients with SA. In a retrospective review of 19 adult males treated with naltrexone for compulsive sexual behavior, 89% indicated a reduction in Compulsive Sexual Behavior (CSB) symptoms (Raymond, Grant, & Coleman, 2010). A case report of an individual diagnosed with Internet Addiction Disorder also reported a decrease in symptoms when treated with naltrexone (Bostwick & Bucci, 2008). Grant and Potenza (2006) noted that the opiate antagonist nalmefene decreases sexual compulsivity to the same extent that the medication decreases compulsive gambling. Naltrexone, in general, decreases the hedonic experience of orgasm, and thereby may be helpful in reducing addictive behavior yet hurtful for healthy sexual relations (Holloway, 2012). The prescribing physician should also be aware of the fact that, theoretically, opiate antagonists are known to increase sex hormones such as testosterone and can thereby increase sexual urges (Bostwick et al., 2009).

Anti-androgens that can dramatically diminish all phases of the sexual response cycle may be indicated in extreme cases of sexual acting out (e.g., sentenced sex offenders). Guay (2009) proposed combination treatment of SSRIs and anti-androgenic treatments for refractory patients. Berlin and Meinecke (1981) have decades of experience in using anti-androgens for sexual offenders. However, their use remains controversial.

SA patients may require prosexual drugs to enhance sexual function. As noted, erectile dysfunction, impaired desire, sexual aversions, sexual anorexia, and anorgasmia are common among SA patients, particularly when they engage with long-standing partners or in stable relationships. If patients are closely monitored, erectogenics may be prescribed for primary, secondary, and/or situational erectile dysfunction.

Case Vignette: Clinical Examples

Patient 1

Patient 1 was a 21-year-old heterosexual college student referred by an inpatient rehabilitation facility after a 30-day inpatient stay focusing on Sex Addiction, with the presenting complaint, "I have erotized rage." During his pre-adolescence, the patient's Generalized Anxiety Disorder was treated with fluoxetine, and his Attention Deficit Hyperactivity Disorder was treated with methylphenidate. The patient has a family history of alcoholism, anxiety, and depression. His brother has a history of excessive porn use and crippling social anxiety.

While a college student, the patient had been discovered to be using his cellphone to record female students taking showers. His actions led to his prompt suspension from college and placement in rehab. For the 5 years prior, he masturbated to Internet pornography daily. For 3 years prior to the evaluation, he was using his cellphone to record his female peers in showers and later using these recordings as masturbatory material.

Although the patient was fairly popular with women, and he had long-term romantic and sexual relationships, the patient engaged in voyeurism on women who were inclined to reject him or who seemed unattainable.

At rehab, the patient determined that marijuana use was a problem and a trigger for compulsive sexual behaviors, and subsequently abstained from marijuana use but continued drinking alcohol with friends. As an outpatient, he participated in individual psychotherapy, family therapy, and group therapy for behavioral addictions. His extremely supportive family was engaged and coached in healthy behaviors that discouraged enabling of the patient's addiction. After months of self-reflection, the patient resumed sexual relations with women and abstained from unhealthy voyeuristic behaviors. However, many of sexual encounters occurred in the context of alcohol, including a few encounters that were solely the result of alcohol use. The patient recognized that while no longer engaged in voyeuristic behaviors, he was engaging in a self-soothing, ego-gratification-based sex that led to misguided and regretful entanglements. For the remaining year of treatment, he did not engage in any furtive, exploitative, and voyeuristic behaviors; returned to college; and, in psychotherapy, worked on having healthy relationships and positive sexual encounters.

Patient 2

Patient 2 was a married, 42-year-old businessman who was a father of one young child. He had spent the past decade deriving his sexual satisfaction at massage parlors and with prostitutes. He sought out paid sex at a minimum of once a week, up to three times a week, and would spend considerable time planning and anticipating his sexual rendezvous. He entered treatment after his wife of 17 years accidentally discovered his behavior through his e-mails. On the Sexual

Continued

Case Vignette: Clinical Examples—cont'd

Dependency Inventory, the patient endorsed 9 (out of 10) criteria for Sex Addiction and had a score of 16 (6 being the threshold for a likely Sex Addiction). The patient began weekly psychotherapy in which he and his therapist explored past traumas, family dynamics, and his sexual arousal template, and they engaged in cognitive behavioral assignments. The patient learned SKY Meditation Therapy (see Chapter 14 on meditation) and attended the local Sex and Love Addicts Anonymous (SLAA) group. The patient was prescribed fluoxetine 10 milligrams per day to decrease his anxiety, improve his mood, and reduce his compulsive sexuality. He had a sober and successful recovery and during his 2 years in treatment, only one slip in a massage parlor in which he was masturbated to orgasm. The most challenging part of his recovery was creating a healthy sexuality with his wife. For the duration of their marriage, they had rare sexual contacts. At the time of discharge from treatment, the patient had remained sober, but his wife, although eager for his recovery, was severely resistant to addressing their conjoint sexual problems. They were referred to a couple's therapist, and she was encouraged to seek her own individual treatment.

These clinical examples demonstrate common scenarios in the evaluation and treatment of Sex Addiction. Patients are often dually diagnosed but have a distinct Sex Addiction. Comprehensive treatment, with multimodal treatment, is required to address the biopsychosocial aspects of the addiction. Adjunct therapies such as Twelve Step Facilitation and Meditation training are helpful. If the patient is engaged in treatment, sobriety—defined as avoiding dysfunctional sexual behaviors—can be achieved. As with almost any addiction, the greatest challenge is changing the system—the family and subculture that fueled and supported the addictive behavior. In Sex Addiction, reprogramming the patient's arousal template and engaging the patient's family and/or partner are the hard-won components of long-term recovery and a satisfying life.

SUMMARY

The American Society of Addiction Medicine and the *International Classification of Diseases* believe that Sex Addiction exists (ASAM, 2010; World Health Organization, 2007). Psychiatric organizations, such as the American Psychiatric Association and the American Academy for Addiction Psychiatry, are more circumspect. While guild and professional organizations battle it out, many clinicians find that the addiction model applies to a subset of patients who may exist on a continuum that includes impulsive-compulsive sexual behaviors, hypersexual patterns, and, in its most compulsive form, Sex Addiction. It is anticipated that as psychiatric research improves our

understanding, studies will support the existence of Sex Addiction and related disorders as painful and serious disorders.

There is no one-size-fits-all treatment approach, but rather health care providers are encouraged to practice good psychiatric, medical, and psychological care while focusing on the addictive cycle in order to restore the patient's mental, physical, and sexual health.

REFERENCES

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* Revised, p. 296. (3rd ed.). Washington, DC: Author.

Aragona, B. J., Liu, Y., Yu, Y. J., Curtis, J. T., Detwiler, J. M., Insel, T. R., et al. (2006). Nucleus accumbens dopamine differentially mediates the formation and maintenance of monogamous pair bonds. *Natural Neuroscience*, *9*, 133–139.

ASAM Public Policy Statement on Treatment for Alcohol and Other Drug Addiction, Adopted: May 01, 1980, Revised: January 01, 2010.

Bancroft, J. (2009). *Human sexuality and its problems* (3rd ed.). New York: Elsevier.

Bancroft, J., Janssen, E., Strong, D., Carnes, L., Vukadinovic, Z., & Long, J. S. (2003). The relation between mood and sexuality in heterosexual men. *Archives of Sexual Behavior*, *32*, 217–230.

Bancroft, J., Janssen, E., Strong, D., & Vukadinovic, Z. (2003). The relation between mood and sexuality in gay men. *Archives of Sexual Behavior*, *32*, 231–242.

Bancroft, J., & Vukadinovic, Z. (2004). Sexual addiction, sexual compulsivity, sexual impulsivity, or what? Toward a theoretical model. *Journal of Sex Research*, *41*(3), 225–234.

Berlin, F. S., & Meinecke, C. F. (1981). Treatment of sex offenders with antiandrogenic medication: Conceptualization, review of treatment modalities and preliminary findings. *American Journal of Psychiatry*, *138*, 601–607.

Bostwick, J. M., & Bucci, J. A. (2008). Internet sex addiction treated with naltrexone. *Mayo Clinical Proceedings*, *83*(2), 226–230.

Bostwick, J. M., Hecksel, K. A., Stevens, S. R., Bower, J. H., & Ahlskog, J. E. (2009). Frequency of new-onset pathologic compulsive gambling or hypersexuality after drug treatment of idiopathic Parkinson Disease. *Mayo Clinic Proceedings*, *84*(4), 310–316.

Carnes, P. J. (1983). *Out of the shadows: Understanding sexual addiction*. Minneapolis, MN: CompCare Publishers.

Carnes, P. J. (1991). *Don't call it love: Recovering from sexual addiction*. New York: Bantam Books.

Carnes, P. J. (1994). *Contrary to love: Helping the sexual addict*. Center City, MN: Hazelden.

Carnes, P. J. (1997). *Sexual Anorexia: Overcoming sexual self-hatred*. Center City, MN: Hazelden.

Carnes, P. J. (2005). *Sexual Addiction: Chapter 18.4. Comprehensive Textbook of Psychiatry, Vol. 1. Sadock & Sadock*. Philadelphia, PA: Lippincott, Williams & Wilkins.

Carnes, P., Green, B., & Carnes, S. (2010). The same yet different: Refocusing the Sexual Addiction Screening Test (SAST) to reflect orientation and gender. *Sexual Addiction Compulsivity*, *17*(1), 7–30.

Carnes, P. J., Green, B. A., Merlo, L. J., Polles, A., Carnes, S., & Gold, M. S. (2011). PATHOS: A brief screening application for assessing sexual addiction. *Journal of Addiction Medicine*, *6*(1), 29–34.

Carnes, P., Murray, R., & Charpentier, L. (2005). Bargains with chaos: Sex addicts and addiction interaction disorder. *Sexual Addiction and Compulsivity: The Journal of Treatment and Prevention*, *12*, 79–120.