

CHAPTER 16

Impulse Control Disorders

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OVERVIEW AND DESCRIPTION OF IMPULSE CONTROL DISORDERS

Impulse control disorders (ICDs) are characterized by impaired ability to resist impulses to engage in ultimately self-destructive behavior (or behaviors with deleterious long-term consequences) (Grant & Potenza, 2004). According to the text revision of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000), most ICDs are characterized by an increased sense of tension or arousal before engaging in the behavior, and a sense of pleasure, gratification, or tension relief during the behavior. Some, but not all, individuals experience a delayed sense of guilt or remorse after the behavior (Hollander, Baker, Khan, & Stein, 2006). The category of ICDs in DSM-IV-TR includes intermittent explosive disorder, kleptomania, pyromania, pathological gambling, and trichotillomania. Other impulsive behaviors are not included as a distinct category but may be categorized as ICDs not otherwise specified (NOS). One such example includes compulsive buying (or compulsive shopping) (Hollander et al., 2006).

We begin this chapter by describing the ICDs as listed in DSM-IV-TR, as well as selected ICD NOS conditions. Next, we discuss current conceptualizations of ICDs and their relationship to compulsive and addictive spectrum disorders. Current measures of impulsivity and the ICDs are described. Finally, we provide a brief overview of the biological and psychological treatment of ICDs.

Intermittent Explosive Disorder

The essential feature of intermittent explosive disorder (IED; American Psychiatric Association, 2000) is the failure to resist aggressive impulses that result in serious assaultive acts (e.g., physical assaults, verbal threats), or property destruction (e.g., purposefully breaking an object of value). The degree of aggressiveness is grossly out of proportion to any precipitating stressors. Individuals with IED often describe these

aggressive impulses as “seeing red” or the “urge or kill someone” (Ferguson, 2006). Though initially thought to be rare, recent studies have shown IED to be a common and underdiagnosed disorder, with a 12-month prevalence of 3.5%–3.9% and a lifetime prevalence of 5.4%–7.3%, depending on severity criteria (Kessler et al., 2006). The large majority of individuals with IED report onset of the disorder prior to age 20 (Kessler et al., 2006), and onset is described as typically abrupt and without a prodromal period (American Psychiatric Association, 2000).

Kleptomania

Kleptomania (American Psychiatric Association, 2000) is characterized by a recurrent failure to resist impulses to steal objects that are not needed for personal use or for their monetary value. The diagnostic criteria for kleptomania also include an increasing sense of tension immediately before committing the theft, as well as a sense of pleasure, gratification, or relief at the time of committing the theft. Stealing behaviors in kleptomania are not committed to express anger or vengeance and are not in response to a delusion or hallucination. Kleptomania often co-occurs with other psychiatric disorders; therefore, it is conceptually unclear whether the disorder presents in clusters with different symptomatic expressions, or whether it is a nonspecific symptom of alternate, underlying psychopathology (Presta et al., 2002). Kleptomania is thought to be rare in the general population, with an estimated lifetime prevalence of 0.6%–0.8% (Goldman, 1991). However, surveys of psychiatric inpatients suggest that kleptomania might be relatively common among adults (7.8%) and adolescents (8.8%) receiving mental health treatment (Grant, Levine, Kim, & Potenza, 2005; Grant, Williams, & Potenza, 2007a). Kleptomania appears to be more prevalent in women than in men, with a typical onset in late adolescence (Presta et al., 2002; Sarasalo, Bergman, & Toth, 1996). Kleptomania is thought to follow one of three typical courses: sporadic, with brief episodes and long periods of remission; episodic, with protracted periods of stealing and periods of remission; or chronic, with some degree of fluctuation (American Psychiatric Association, 2000).

Pyromania

Pyromania (American Psychiatric Association, 2000) is characterized by multiple episodes of deliberate and purposeful fire setting, fascination with fire and its situational contexts, and a sense of tension or arousal followed by pleasure or relief after setting fires (Lejoyeux, McLoughlin, & Andes, 2006). Fire setting behaviors in pyromania are not done for monetary gain, as an expression of sociopolitical ideology, to conceal criminal activity, to express anger or vengeance, to improve one's living circumstances, in response to a delusion or hallucination, or as a result of impaired judgment. Few epidemiological studies have directly assessed the prevalence of pyromania. Studies of populations of arsonists or fire setters have revealed that although most of these individuals report a history of fire fascination (Barker, 1994), “true” pyromania is rare. Rather, fire setting for profit or revenge, secondary to delusions or hallucinations, or (in children and adolescents) secondary to conduct disorder or attention-deficit/hyperactivity disorder (ADHD), occurs more frequently than does fire setting due to impulse dyscontrol and the tension–relief cycle (Lejoyeux et al., 2006). Surveys of psychiatric inpatients revealed that 3.4% of adult patients (Grant

et al., 2005) and 6.9% of adolescent patients (Grant, Williams, et al., 2007a) met diagnostic criteria for pyromania.

Pathological Gambling

Pathological gambling (PG; American Psychiatric Association, 2000) is characterized by the presence of persistent and recurrent maladaptive gambling behaviors, as indicated by features such as preoccupation with gambling, the need to gamble with increasing amounts of money to achieve the desired excitement, repeated unsuccessful efforts to cut back or stop gambling, restlessness or irritability when attempting to stop gambling, gambling to escape from problems or to relieve a dysphoric mood, “chasing” gambling losses with more gambling, lying to others about gambling, committing illegal acts to finance gambling, jeopardizing or losing significant relationships or other opportunities because of gambling, or relying on others for financial “bail-outs” after gambling losses. PG has been estimated across studies as being present in 1%–3% of the general population (Gerstein et al., 1999; Welte, Barnes, Wieczorek, Tidwell, & Parker, 2001). Furthermore, surveys of psychiatric inpatients revealed PG among 6.9% of adults (Grant et al., 2005) and 4.9% of adolescents (Grant, Williams, et al., 2007a). In addition, up to 5% of the general population suffers from “problem gambling,” defined as subsyndromal PG (Gerstein et al., 1999; National Research Council, 1999; Welte et al., 2001). Approximately 90% of patients with PG begin gambling prior to age 20, with onset of PG occurring 1–10 years later (Blaszczynski & Nower, 2006). Men are more likely than women to exhibit PG (60% of patients with PG are male) (Petry, 2005), and report longer periods of intense (1 vs. 4.6 years) and problem gambling (1.8 vs. 8.6 years) than do women (Tavares, Zilberman, Beites, & Gentil, 2001).

Compulsive Buying

Although compulsive buying (CB) is not included in DSM-IV-TR and does not have definitive diagnostic criteria, it has nevertheless attracted considerable empirical study over the past two decades (Faber & O’Guinn, 1992; Miltenberger et al., 2003). One set of proposed diagnostic criteria, from McElroy et al. (1994), defines CB as a maladaptive preoccupation with buying or shopping, or maladaptive buying or shopping impulses or behavior, as indicated by frequent preoccupation with buying or impulses to buy that are experienced as irresistible, intrusive and/or senseless, and frequent buying of more than can be afforded or of items that are not needed, or shopping for longer periods of time than intended. Compulsive buyers report being more likely to buy when experiencing negative emotions, such as anger, loneliness, frustration, hurt feelings, or irritability, and report a release of tension and increased gratification while buying (Christenson et al., 1994; Miltenberger et al., 2003). It is estimated that 2–8% of the population engages in CB, and that 80–95% of patients with CB are female (Ninan, McElroy, et al., 2000; Schlosser, Black, Repertinger, & Freet, 1994). Mean age of onset ranges from 18 to 30 years (Christenson et al., 1994; McElroy et al., 1994). CB can result in a number of difficulties, including substantial debt, legal problems, personal distress due to inability to control buying, and marital conflict (see Black, 1996, for a review).

Trichotillomania and Body-Focused Repetitive Behavior Disorders

Trichotillomania (TTM; American Psychiatric Association, 2000) is characterized by recurrent pulling out of one's hair, resulting in noticeable hair loss; as well as the tension relief/pleasure cycle described in the diagnostic criteria for other ICDs. The latter criteria (tension relief/pleasure) are somewhat controversial in light of data suggesting that a significant minority of individuals who pull their hair do not report experiencing tension or pleasure/relief (Christenson, MacKenzie, & Mitchell, 1991; Schlosser, Black, Blum, & Goldstein, 1994). Approximately 75% of adult TTM patients report that most of their hairpulling behavior takes place outside of awareness, whereas the remaining 25% describe themselves as primarily focused on hairpulling when they pull (Christenson & MacKenzie, 1994). Some authors (e.g., Franklin & Tolin, 2007; Woods & Miltenberger, 2001) have suggested that TTM overlaps with other so-called "body-focused repetitive behaviors" that include pathological skin picking, nail-biting, and related problems.

In studies involving college samples, 10%–13% of students reported frequent noncosmetic hairpulling. Clinically significant pulling (i.e., resulting in visible alopecia) was present in 2.0–2.5%, and full diagnostic criteria for TTM were met in 0.6% of students (Christenson, Pyle, & Mitchell, 1991; Rothbaum, Shaw, Morris, & Ninan, 1993). TTM onset is usually in childhood or adolescence (Christenson, 1995), with a subset of cases persisting into adulthood. Individuals with TTM report significant functional impairment: For example, in a sample of individuals attending a national TTM conference, 71% reported TTM-related impairment in social functioning, 55% endorsed TTM-related impairment in occupational functioning, and 69% endorsed avoidance of specific leisure activities (Keuthen et al., 2002).

CONCEPTUALIZING IMPULSE CONTROL DISORDERS

Impulse, Compulsion, or Addiction?

ICDs are linked together in DSM-IV-TR by the presumed construct of impulsivity, defined as "a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individual or to others" (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001, p. 1784). Other hypothesized features of impulsivity include a tendency to underestimate risk of harm, extraversion, inability to delay gratification, and a tendency toward risk taking, pleasure, and sensation seeking (Hollander, Posner, & Cherkasky, 2002). Impulsivity is thought to underlie the ICDs, as well as several other psychiatric conditions, including antisocial personality disorder, borderline personality disorder, substance abuse, bipolar disorder, ADHD, conduct disorder, self-injurious behaviors, and binge eating (Evenden, 1999; Hollander et al., 2006; Moeller et al., 2001). Biologically, impulsivity is characterized by altered activity in corticolimbic networks associated with behavioral arousal and inhibitory control (Brown, Manuck, Flory, & Hariri, 2006).

Some authors (e.g., Hollander, 1993) have argued that ICDs should be considered part of a spectrum of disorders that includes obsessive-compulsive disorder (OCD). Evidence in support of this view includes positive response of some ICD

patients to clomipramine (Swedo, Leonard, et al., 1989; but see also Ninan, Rothbaum, Marsteller, Knight, & Eccard, 2000), higher rates of OCD in family members of individuals with ICDs (King et al., 1995; Lenane et al., 1992; but see also Black, Moyer, & Schlosser, 2003), and similarities in clinical presentation, because both ICDs and OCD involve what patients sometimes describe as uncontrollable behaviors (Grant & Potenza, 2006a; Swedo & Leonard, 1992). Indeed, the proposed diagnostic criteria for CB described earlier (McElroy et al., 1994) parallel those for OCD (American Psychiatric Association, 2000). Despite these similarities, important differences between ICDs and OCD have also been noted. ICDs are generally not characterized by the intrusive, repetitive thoughts that are a core symptom of OCD (Stanley, Swann, Bowers, Davis, & Taylor, 1992), although elevated rates of obsessive thoughts unrelated to the impulsive behavior have been noted (Blaszczynski, 1999; Grant & Potenza, 2006a). Unlike patients with OCD, individuals with ICDs tend to describe their target behavior as pleasurable or appetitive (Stanley et al., 1992), suggesting maintenance of ICDs by positive, rather than negative, reinforcement (Opdyke & Rothbaum, 1999), although a sample of compulsive buyers reported obtaining relief from negative emotions through buying (Miltenberger et al., 2003). Epidemiological research has shown a relatively low rate of OCD among individuals with PG (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998); in patients with TTM, rates of OCD are somewhat higher (Swedo & Leonard, 1992; Tolin, Franklin, Diefenbach, Anderson, & Meunier, 2007). Family members of patients with OCD show elevated rates of TTM and skin picking compared to control probands; however, they do not show particularly high rates of PG, kleptomania, or pyromania (Bienvenu et al., 2000). Hollander and colleagues (Berlin & Hollander, 2008; Hollander et al., 2006; Hollander & Rosen, 2000) have suggested that impulsivity and compulsivity may represent opposite poles of a risk-avoidance construct, with individuals on the compulsive end of the spectrum characterized by exaggerated perceptions of threat and safety-related behaviors, and those on the impulsive end of the spectrum characterized by lack of threat recognition and excessive efforts to obtain pleasure or gratification.

Other authors (e.g., Grant, Odlaug, & Potenza, 2007) have conceptualized ICDs within a framework of addiction, akin to substance use disorders; this is clearly evident in the diagnostic criteria for PG, which parallel those for substance abuse and dependence (American Psychiatric Association, 2000). Although the term "addiction" has traditionally been used to describe physiological or psychological dependence on a substance, more recently the term has been applied to any behavior associated with a craving state, impaired control, and continued behavioral engagement despite adverse consequences (Potenza, 2006). By definition, ICDs are associated with the latter two factors. Whether ICDs are associated with the first factor (craving) is less clear. Body-focused repetitive behavior disorders such as TTM and skin picking frequently take place "automatically" or outside of awareness (Christenson & MacKenzie, 1994; Neziroglu, Rabinowitz, Breytman, & Jacofsky, 2008; Odlaug & Grant, 2008). Approximately two-thirds of problem gamblers report moderate to high urges to gamble in a simulated casino environment (Kushner et al., 2007). Research has suggested several parallel neurobiological characteristics of ICDs and substance use disorders, including altered dopaminergic activity (Bergh, Eklund, Sodersten, & Nordin, 1997); clinical response to opioid blockade (Grant, Potenza, et al., 2006); and diminished activity in frontal regions, such as ventromedial prefrontal

cortex (Potenza et al., 2003). High rates of substance use disorders are evident among individuals with PG (Desai & Potenza, 2008; Grant, Williams, & Potenza, 2007b), although rates of substance use disorders appear lower among individuals with TTM (Christenson, 1995; Swedo & Leonard, 1992).

ASSESSMENT OF IMPULSE CONTROL DISORDERS

Table 16.1 shows published measures of impulsivity and ICDs. Most of these measures are self-report questionnaires; however, some semistructured interviews and observational ratings have been developed. In addition, several laboratory or performance-based measures of impulsivity are promising in this context. Because there are so many of these measures, spanning different ICDs, a detailed examination of the psychometric strengths and limitations of each measure is not possible in this chapter. Instead, we highlight some of the more commonly used measures of these conditions, and the reader is directed to the source material for further details.

Measures of General Impulsivity

Self-Report Measures

The *Barratt Impulsiveness Scale—Version 11* (BIS-11; Patton, Stanford, & Barratt, 1995) is a 30-item self-report measure that assesses motor impulsiveness, nonplanning impulsiveness, and attentional impulsiveness. The BIS-11 has been shown to have good internal consistency and readily distinguishes between impulsive-aggressive and nonimpulsive patients (Patton et al., 1995). The *Eysenck Impulsiveness Questionnaire* (Eysenck, Pearson, Easting, & Allsopp, 1985), a 54-item yes-no self-report instrument that measures impulsiveness, venturesomeness and empathy, has been shown to have good internal consistency, and its factors correspond to different personality features.

Performance-Based Measures

Performance-based measures of general impulsivity have frequently been employed in experimental psychopathology research, as well as in clinical neuropsychological assessments, and their selection depends largely on how impulsivity is defined (Moeller et al., 2001). These measures can be broadly classified into two major groups: those that measure *altered response to behavioral contingencies*, and those that measure *behavioral disinhibition*. The review below is far from complete, and the reader is directed to previous reviews (e.g., Evenden, 1999; Moeller et al., 2001; Nigg, 2000) for a broader discussion of laboratory measures of impulsivity.

Contingency-based paradigms examine behavioral responses that persist despite being punished or not rewarded, or a tendency to select smaller, immediate rewards over larger, delayed rewards for behavior (Ainslie, 1975). For example, Daugherty and Quay (1991) developed a response perseveration task in which respondents choose either to “open” a series of doors on a computer screen or to stop playing; each door opens to reveal a happy face (for which the respondent would receive a token to be exchanged for a tangible reward) or a sad face (for which the respondent would lose

TABLE 16.1. Measures of Impulse Control Disorders

	Type of measure
<u>Measures of Impulsivity</u>	
Barratt Impulsiveness Scale, Version 11 (Patton et al., 1995)	Self-report
Eysenck Impulsiveness Questionnaire (Eysenck et al., 1985)	Self-report
Response Perseveration Task (Daugherty & Quay, 1991)	Performance
Delay discounting task (Hoffman et al., 2006)	Performance
Iowa Gambling Task (Bechara et al., 1994)	Performance
Cambridge Gambling Task (Rogers, Owen et al., 1999)	Performance
Continuous Performance Test (Beck et al., 1956)	Performance
Go/no-go task (Drewe, 1975)	Performance
Stop task (Logan, 1994)	Performance
Inhibitory reach task (Klimkeit et al., 2004)	Performance
Matching Familiar Figures Test (Kagan, 1966)	Performance
Stroop Color–Word Test (Stroop, 1935)	Performance
Temporal differentiation task (van den Broek et al., 1987)	Performance
<u>Measures of impulse control disorders</u>	
<i>General</i>	
Minnesota Impulse Control Disorders Interview (Christenson et al., 1994)	Interview
<i>Intermittent explosive disorder</i>	
Intermittent Explosive Disorder Interview (McCloskey & Coccaro, 2003)	Interview
Life History of Aggression (Coccaro et al., 1998)	Self-report
Overt Aggression Scale—Modified (Coccaro et al., 1991)	Interview
Hostile Automatic Thoughts Questionnaire (Snyder et al., 1997)	Self-report
State–Trait Anger Expression Inventory–2 (Spielberger, 1999)	Self-report
Module for Intermittent Explosive Disorder (First et al., 1995)	Interview
Buss–Durkee Hostility Inventory (Buss & Durkee, 1957)	Self-report
Aggression Questionnaire (Buss & Perry, 1992)	Self-report
Anger, Irritability, and Assault Questionnaire (Coccaro et al., 1991)	Self-report
Novaco Anger Scale (Novaco, 1994)	Self-report
<i>Kleptomania</i>	
Kleptomania Symptom Assessment Scale (Grant & Kim, 2002)	Self-report
Structured Clinical Interview for Kleptomania (Grant, Kim, et al., 2006)	Interview
<i>Pyromania</i>	
Fire History Screen (Kolko & Kazdin, 1988)	Self-report
Child Firesetting Interview (Kolko & Kazdin, 1989b)	Interview (child)
Firesetting Risk Interview (Kolko & Kazdin, 1989b)	Interview (parent)
Safe and Unsafe Fire Activities (Kolko, 2001)	Self-report
Fire Interest/Attraction Scale (Kolko & Kazdin, 1992)	Self-report
<i>Measures of pathological gambling</i>	
South Oaks Gambling Screen (Lesieur & Blume, 1987)	Interview or self-report
Pathological Gambling Modification of the Yale–Brown Obsessive Compulsive Scale (Hollander & DeCaria, 1998)	Interview
Gambling Symptom Assessment Scale (Kim et al., 2001)	Self-report
National Opinion Research Center DSM-IV Screen for Gambling Problems (Hodgins, 2004; National Opinion Research Center, 1999)	Interview
Addiction Severity Index–Gambling (McLellan et al., 1985; Petry, 2003)	Interviewer rating
Diagnostic Interview for Gambling Severity (Winters et al., 1996)	Interview
Massachusetts Gambling Screen (Shaffer et al., 1994)	Self-report
Gambling Timeline Followback (Sobell & Sobell, 1992)	Self-report

(cont.)

TABLE 16.1. (cont.)

	Type of measure
<i>Measures of pathological gambling (cont.)</i>	
Gambling Self-Efficacy Questionnaire (May et al., 2003)	Self-report
URICA—Adapted for Gambling (DiClemente & Prochaska, 1982, 1985)	Self-report
Ladder of Change (Biener & Abrams, 1991)	Self-report
Pathological Gambling Module of the Diagnostic Interview Schedule (Govoni, Frisch, & Stinchfield, 2001)	Interview
Canadian Problem Gambling Index (Ferris & Wynne, 2001)	Self-report
Lie/Bet Questionnaire (Johnson et al., 1997)	Self-report
Gambling Attitude Scale (Kassinove, 1998)	Self-report
Gambling Attitudes and Belief Survey (Breen & Zuckerman, 1999)	Self-report
Gamblers Belief (Steenbergh et al., 2002)	Self-report
Informational Biases Scale (Jefferson & Nicki, 2003)	Self-report
Gambling Metacognition Questionnaire (May et al., 2003)	Self-report
Gambling Urge Scale (Raylu & Oei, 2004b)	Self-report
Motivation Toward Gambling Scale (Chantal, Vallerand, & Vallieres, 1994)	Self-report
Gambling Related Cognitions Scale (Raylu & Oei, 2004a)	Self-report
<i>Measures of compulsive buying</i>	
Compulsive Buying Scale (Faber & O'Guinn, 1992)	Self report
Compulsive Buying Interview (Miltenberger et al., 2003)	Interview
Yale–Brown Obsessive Compulsive Scale—Shopping Version (Monahan et al., 1995)	Interview
Compulsive Acquisition Scale (Frost, Steketee, & Williams, 2002)	Self-report
<i>Measures of trichotillomania and other body-focused repetitive behavior disorders</i>	
Trichotillomania Diagnostic Interview (Rothbaum & Ninan, 1994)	Interview
Massachusetts General Hospital Hairpulling Scale (Keuthen et al., 1995)	Self report
Psychiatric Institute Trichotillomania Scale (Winchel et al., 1992)	Interview
NIMH Trichotillomania Severity Scale (Swedo, Rapoport, et al., 1989)	Interviewer rating
NIMH Trichotillomania Impairment Scale (Swedo, Rapoport, et al., 1989)	Interviewer rating
Alopecia Rating (Tolin et al., 2007)	Interviewer rating
Trichotillomania Scale for Children (Tolin et al., 2008)	Self-report (child, parent)
Milwaukee Inventory for Subtypes of Trichotillomania (Flessner, Conelea, et al., 2008)	Self-report (child, parent)
Milwaukee Inventory for Subtypes of Trichotillomania—Child Version (Flessner et al., 2007)	Self-report
Massachusetts General Hospital Skin Picking Scale (Bloch et al., 2001)	Self-report
Skin Picking Scale (Keuthen, Wilhelm, et al., 2001)	Self-report
Skin Picking Impact Scale (Keuthen, Deckersbach, et al., 2001)	Self-report

a token). Over time, door-opening responses are rewarded less and punished more. Persistence despite punishment has been associated with conduct disorder (Daugherty & Quay, 1991) and ADHD (Matthys, van Goozen, de Vries, Cohen-Kettenis, & van Engeland, 1998). Similarly, Hoffman et al. (2006) developed a delay discounting task, in which respondents were asked to choose between large hypothetical monetary rewards after a variable delay and typically smaller rewards immediately. Methamphetamine-dependent respondents show a pattern of discounting delayed rewards compared to healthy controls (Hoffman et al., 2006). The *Iowa Gambling Task* (IGT; Bechara, Damasio, Damasio, & Anderson, 1994) is a computerized card playing game in which patients select cards from one of four decks; each choice is

associated with “monetary” gains and losses. Two of the decks intermittently produce large rewards but in the long term lead to significant financial losses, whereas the other two decks lead to modest but consistent gains. Impaired performance on the IGT has been documented in patients with lesions to ventromedial prefrontal cortex (VMPFC; Bechara, Damasio, Tranel, & Damasio, 1997) and recovering substance abusers (Fishbein et al., 2005). A variant of the IGT, the *Cambridge Gambling Task* (Rogers, Owen, et al., 1999), requires respondents to place “monetary” wagers on outcomes with odds that are disclosed up front to the respondents; patients with VMPFC lesions (Rogers, Owen, et al., 1999) and opiate users (Rogers, Everitt, et al., 1999) show longer response times on this task; patients with VMPFC lesions (Rogers, Owen, et al., 1999) and amphetamine users (Rogers, Everitt, et al., 1999) also place more high-risk wagers.

Behavioral disinhibition paradigms assess behavioral responses that are premature, or that should be inhibited. The prototypical disinhibition paradigm is the *Continuous Performance Test* (CPT; e.g., Beck, Bransome, Mirsky, Rosvold, & Sarason, 1956), in which patients are instructed to press a key when a target stimulus is presented but not when nontarget stimuli are presented. Impulsivity is operationalized as the number of errors of commission (key presses in the absence of the target stimulus), although some subtypes of commission errors appear to reflect inattention to the task rather than impulsivity (Halperin, Wolf, Greenblatt, & Young, 1991). Both alcohol consumption (Dougherty et al., 1999) and ADHD (Losier, McGrath, & Klein, 1996) are associated with increased commission errors. Variants of the CPT address different aspects of impulsivity and other neurocognitive functioning, although they all share the common feature of detecting key presses that the patient was instructed to inhibit. These variants include the *go/no-go task* (Drewe, 1975), *stop signal paradigm*, or *stop task* (Logan, 1994), and *inhibitory reach task* (Klimkeit, Mattingley, Sheppard, Farrow, & Bradshaw, 2004). These performance tasks have proved sensitive to ADHD (Lijffijt, Kenemans, Verbaten, & van Engeland, 2005; Oosterlaan, Logan, & Sergeant, 1998; Shue & Douglas, 1992). Adults with TTM also exhibit more errors of commission on the go/no-go task than do adults with OCD, lending support to the distinction between impulsivity and compulsivity (Bohne, Savage, Deckersbach, Keuthen, & Wilhelm, 2008). Kagan’s (1966) *Matching Familiar Figures Test* requires respondents to identify which of six drawings is identical to a target drawing; impulsivity is considered a function of rapid and incorrect responding. The *Stroop Color–Word Test* (Stroop, 1935) has also been used as a disinhibition paradigm; in the original version of this task, patients view a series of color words written in conflicting colors (e.g., the word “red” printed in blue ink) and are asked to name the ink colors (thus, patients must inhibit the verbal response associated with reading the word); longer color-naming times have been associated with ADHD (Homack & Riccio, 2004) and self-reported impulsivity (Enticott, Ogloff, & Bradshaw, 2006). Van den Broek, Bradshaw, and Szabadi’s (1987) *temporal differentiation task* assesses respondents’ ability to earn monetary reward by delaying key press responses by 10 seconds or more; impulsive subjects perform more poorly on this task than do nonimpulsive subjects.

Thus, performance-based measures assessing impulsivity in terms of altered contingency response or behavioral inhibition show promise in the context of ICD assessment. To date, these measures have been studied primarily in disorders other than ICDs (e.g., substance use disorders, ADHD), and the psychometric properties of these measures for the assessment of ICDs are in need of further study.

Measures of Impulse Control Disorders

General Measures

One general measure of impulse control that is commonly used to assess ICDs is the *Minnesota Impulsive Disorders Interview* (MIDI; Christenson et al., 1994). The MIDI is a semistructured clinical interview with excellent classification accuracy in adults with ICDs (Grant, Williams, et al., 2007a). The MIDI includes probe questions for each ICD, including ICD-NOS, with additional follow-up questions reflecting DSM-IV criteria. Questions for CB, compulsive sexual behavior, and pathological skin picking reflect the ICD criteria of increasing tension followed by relief, personal distress, and impairment (Grant, Williams, et al., 2007a).

Intermittent Explosive Disorder

One of the most effective tools for assessing IED is the *Module for Intermittent Explosive Disorder* (M-IED), a semistructured interview based on the Structured Clinical Interview for DSM-IV (SCID), which focuses on frequency of outbursts, level of aggression, and level of social impairment (Coccaro, Kavoussi, Berman, & Lish, 1998). In addition to the semistructured clinical interview, several self-report measures of anger, aggression, and information processing are also useful for assessing and diagnosing IED. For instance, *Life History of Aggression* (LHA; Coccaro et al., 1998) is a self-report measure that provides a quantitative index of aggression, self-aggression, and antisocial behavior. Specifically, the LHA–Aggression scale (LHA-A) has good interrater and test–retest reliability, and discriminates patients with IED from both psychiatric groups without IED and healthy controls (McCloskey, Berman, Noblett, & Coccaro, 2006). The *Aggression Questionnaire* (AQ; Buss & Perry, 1992) assesses respondents' propensity for aggressive behaviors and their ability to resist engaging in destructive behavior. According to Eckhardt, Norlander, and Deffenbacher (2004), the psychometric adequacy, conceptual clarity, and practical utility of the AQ are very strong. The *Hostile Automatic Thoughts Questionnaire* (HAT; Snyder, Crowson, Houston, Kurylo, & Poirier, 1997), a measure of hostility-related thoughts, is also helpful in the assessment of IED. The HAT exhibits strong internal consistency, as well as strong convergent and discriminant validity (McCloskey, Noblett, Deffenbacher, Gollan, & Coccaro, 2008; Snyder et al., 1997). Finally, the *State–Trait Anger Expression Inventory–2* (STAXI-2; Spielberger, 1999) is a multidimensional self-report of anger and anger expression/control that is commonly used in behavioral medicine and anger treatment outcome research (McCloskey et al., 2008; Spielberger, 1999). As detailed in the STAXI-2 manual (Spielberger, 1999) the STAXI-2 scales have been shown to be valid and internally consistent. Other, less frequently used, measures of IED are shown in Table 16.1.

Kleptomania

The only validated measures for kleptomania identified at the time of this writing are the *Structured Clinical Interview for Kleptomania* (SCI-K; Grant, Kim, & McCabe, 2006), a semistructured interview that has demonstrated excellent test–retest and interrater reliability, and concurrent validity in treatment-seeking subjects and the *Kleptomania Symptom Assessment Scale* (KSAS; Grant & Kim, 2002), a self-report measure that assesses thoughts, urges, and behaviors associated with stealing.

Pyromania

Similar to kleptomania, there are few validated measures for assessing pyromania. However, some commonly used assessment measures of child and adolescent fire-setting behavior include self-report measures such as the *Fire History Screen* (Kolko & Kazdin, 1988), the *Child Firesetting Interview* (Kolko & Kazdin, 1989b), and the parent-reported *Firesetting Risk Interview* (Kolko & Kazdin, 1989a). Strong psychometric properties for each of these measures have been reported, with reliability and validity coefficients ranging from adequate to excellent (Kolko, 2001).

Pathological Gambling

One of the most commonly used measures to assess PG is the *South Oaks Gambling Screen* (SOGS; Lesieur & Blume, 1987). Based on DSM-III-R (American Psychiatric Association, 1987) criteria, the SOGS categorizes individuals who endorse five or more items as pathological gamblers. However, despite its popularity, the psychometric properties of the SOGS are questionable, and the measure has been criticized for generating a high number of false positives in general population samples, using outdated diagnostic criteria for PG, and failing to discriminate adequately between subclinical problem gambling and true PG groups (Blaszczynski & Nower, 2006; Stinchfield, 2002). In addition to the SOGS, other commonly used gambling screening instruments include the *Canadian Problem Gambling Index* (CPGI; Ferris & Wynne, 2001), the *Lie/Bet Questionnaire* (Johnston, O'Malley, & Backman, 1997), a two-item screen that comprises DSM-IV-based (American Psychiatric Association, 1994)-based questions found to be particularly sensitive in identifying pathological gamblers; and the *National Opinion Research Center DSM-IV Screen for Gambling Problems* (NODS; National Opinion Research Center, 1999). The *Pathological Gambling Modification of the Yale–Brown Obsessive–Compulsive Scale* (Y-BOCS; Hollander & DeCaria, 1998), a measure with reportedly good reliability and validity, is one of the most widely used clinician-rated outcome measures of PG (Hollander & Berlin, 2008). The *Gambling Symptom Assessment Scale* (Kim, Grant, Adson, & Shin, 2001), also a reliable and valid measure of PG, is a commonly used self-rated outcome measure designed to assess change in gambling symptoms during treatment (Hollander & Berlin, 2008).

Compulsive Buying

The most common measure for identifying CB is the *Compulsive Buying Scale* (CBS; Faber & O'Guinn, 1992), a screening instrument that consists of seven statements representing specific behaviors and feelings related to CB. The CBS has been shown to have good reliability and validity (Faber & O'Guinn, 1992). In addition, the *Compulsive Buying Interview* (CBI; Miltenberger et al., 2003), a semistructured questionnaire, was developed to assess the antecedents and consequences of CB behavior. The CBI also assesses the amount of money spent in CB episodes, typical items bought, duration and frequency of buying episodes, and level of debt associated with CB. The *Yale–Brown Obsessive–Compulsive Scale—Shopping Version* (Y-BOCS-SV; Monahan, Black, & Gabel, 1995) is also a commonly used measure to assess cognitions and behaviors associated with CB. The Y-BOCS-SV assesses individuals' preoccupa-

tions and behaviors related to shopping, the time involved, interference caused by the preoccupations and behaviors, distress associated with buying, resistance to the thoughts and behaviors, and degree of control over the symptoms. The Y-BOCS-SV has been shown to be reliable and valid in measuring severity and change in clinical trials (Monahan et al., 1995).

Trichotillomania and Body-Focused Repetitive Behavior Disorders

The only published measure that surveys the diagnostic criteria for TTM is the *Trichotillomania Diagnostic Interview* (Rothbaum & Ninan, 1994), a semistructured interview that yields scores on each of the criteria, A through D, and also includes a comprehensive checklist of possible hairpulling sites. Each criterion is ranked as either absent, subthreshold, or threshold/true. Because the TDI was developed using DSM-III-R (American Psychiatric Association, 1987) criteria, supplemental questions have been added to assess DSM-IV-TR (American Psychiatric Association, 2000) Criteria B (increasing tension) and E (clinically significant distress/functional impairment) (Franklin & Tolin, 2007).

Several measures have been developed to assess the severity of TTM and related disorders. The *NIMH Trichotillomania Questionnaire* (Swedo, Leonard, et al., 1989), a semistructured clinical interview, comprises two clinician-rated scales: the *NIMH Trichotillomania Severity Scale* (NIMH-TSS) and the *NIMH Trichotillomania Impairment Scale* (NIMH-TIS). The NIMH-TSS consists of five questions related to average time spent hairpulling, time spent pulling on the previous day, resistance to urges, resulting distress, and daily interference. The NIMH-TIS is a clinician rating of overall impairment. Psychometric data for the NIMH Trichotillomania Questionnaire are limited, but good interrater reliability has been reported in two small studies (Diefenbach, Tolin, Crocetto, Maltby, & Hannan, 2005; Swedo, Leonard, et al., 1989). The *Massachusetts General Hospital Hairpulling Scale* (MGH-HPS; Keuthen et al., 1995; O'Sullivan et al., 1995) is a self-report measure of the frequency, intensity, and control over hairpulling urges, as well as associated distress. The psychometric properties of the scale are satisfactory (Diefenbach et al., 2005; Keuthen et al., 1995; O'Sullivan et al., 1995), and it is currently the most widely used measure of TTM in clinical research. The same group of investigators has also developed self-report scales of skin-picking severity (Keuthen, Wilhelm, et al., 2001) and associated impairment (Keuthen, Deckersbach, et al., 2001). The *Trichotillomania Scale for Children* (TSC; Tolin et al., 2008) is a self-report questionnaire designed to assess severity of TTM and associated distress/impairment in children and adolescents. Item response choices on the TSC range from 0 to 2 points, with higher numbers indicating more severe symptoms. Child- and parent-report versions of the TSC have been developed. The *Psychiatric Institute Trichotillomania Scale* (PITS; Winchel et al., 1992) is a semistructured interview that assesses number of hairpulling sites, duration of time spent pulling or thinking about pulling, frequency of resisting hairpulling urges, interference, distress, and severity of hair loss. Items are rated on a 0- to 7-point scale, with higher scores indicating more severe symptoms. Internal consistency of the PITS is relatively low (Diefenbach et al., 2005; Stanley, Breckenridge, Snyder, & Novy, 1999); interrater reliability is generally acceptable for all items except distress (Diefenbach et al., 2005). Observational ratings of scalp, eyebrow, or eyelash alopecia have also been used in the evaluation of TTM severity

(Tolin et al., 2007); these ratings show acceptable interrater reliability (Diefenbach et al., 2005).

As described previously, many individuals with TTM report hairpulling that takes place outside of awareness and is subjectively perceived as involuntary. The *Milwaukee Inventory for Subtypes of Trichotillomania* (MIST) was developed to classify patients into “automatic” versus “focused” subtypes. Adult (MIST-A; Flessner, Woods, et al., 2008) and child (MIST-C; Flessner et al., 2007) versions have been published; preliminary research suggests adequate reliability, although correlations with other measures of symptom awareness are low (Flessner, Woods, et al., 2008; Flessner et al., 2007).

Practical Recommendations for Assessment of Impulse Control Disorders

Diagnostics

Assessment of ICDs in clinical settings should include a broad-based screen, detailed assessment of the target ICD, and examination of potential comorbid psychiatric conditions. Overall screening for ICDs might be accomplished in clinical settings with the MIDI; impulsivity as a general construct might be probed with the BIS-11. When a specific ICD is endorsed or suspected, the clinician should employ one or more of the semistructured interviews, self-report measures, or behavioral observation methods listed in Table 16.1.

Assessment of ICDs requires consideration of possible medical explanations for the behavior; therefore, a comprehensive medical examination is generally considered an essential part of the assessment process (e.g., Ferguson, 2006). Once medical conditions have been ruled out, a comprehensive assessment of ICDs should include an examination of several variables, including frequency and severity of impulsive behavior, frequency of failure to resist behavioral impulses or urges, extent of premeditation of the impulsive behavior, thoughts or beliefs related to the impulsive behavior, and degree of functional impairment caused by the behavior (e.g., Coccaro et al., 1998; Franklin & Tolin, 2007; Sharpe, 1999).

Differential Diagnosis and Assessment of Comorbid Conditions

Given that ICDs are to a large extent diagnoses of exclusion, it is important that clinicians assess other Axis I disorders and examine all clinically relevant variables during the initial interview. Assessment of other psychiatric disorders is usually accomplished via semistructured clinical interviews, such as the *Mini International Diagnostic Interview* (MINI; Sheehan et al., 1998), the *Structured Clinical Interview for DSM-IV Axis I (SCID-I) and Axis II (SCID-II) Disorders* (First, Spitzer, Gibbon, & Williams, 1995, 1997), or the *Anxiety Disorders Interview Schedule for DSM-IV* (ADIS-IV; Brown, Di Nardo, & Barlow, 1994).

Individuals with bipolar disorder may exhibit “excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investments)” (American Psychiatric Association, 2000, p. 362) as part of a manic or hypomanic episode. Diagnosis of an ICD would only be appropriate when the impulsive behavior

does not occur exclusively within the context of manic or hypomanic episodes, that is, distinct periods of abnormally and persistently elevated, expansive, or irritable mood, with associated symptoms, such as grandiosity, decreased need for sleep, or flight of ideas. Individuals with borderline personality disorder (BPD) may exhibit “impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating)” (p. 710). When patients describe impulsive behaviors that appear to be prompted by chronic feelings of emptiness, or that represent an attempt to feel pain or to punish oneself, careful evaluation of other symptoms of BPD (e.g., a long-standing pattern of unstable interpersonal relationships, extreme response to real or imagined abandonment, or recurrent suicidal behavior, gestures, or threats) is warranted. Antisocial personality disorder (ASPD) may also be characterized by “repeatedly performing acts that are grounds for arrest,” “impulsivity or failure to plan ahead,” “irritability and aggressiveness, as indicated by repeated physical fights or assaults,” and “reckless disregard for safety of self or others” (p. 706). When impulsive behaviors appear within this broader constellation of symptoms, particularly when the individual exhibits lack of remorse and early history suggests the presence of conduct disorder, a diagnosis of ASPD should be considered. Individuals with the predominantly hyperactive-impulsive type of ADHD may exhibit impulsive behaviors, such as “often blurts out answers before questions have been completed,” “often has difficulty awaiting turn,” and “often interrupts or intrudes on others (e.g., butts into conversations or games)” (p. 92). A diagnosis of ADHD should be considered when these symptoms appear within a broader constellation of concerns, including inattention (e.g., making careless mistakes, distractibility) and hyperactivity (e.g., fidgeting, talking excessively) that have been present since age 7 or earlier.

As described previously, ICDs can generally be distinguished from OCD by several criteria, such as maintenance by positive rather than negative reinforcement; the absence of intrusive, repetitive thoughts that precede the behavior; and ICD patients’ tendency toward a single class of impulsive behaviors as opposed to the multiple types of compulsions in individuals with OCD. That said, in some cases the differential diagnosis is less clear. For example, a hairpulling patient described by Franklin and Tolin (2007) reported that she pulled her hair out whenever she had an intrusive image of harm befalling a loved one, and that she felt a reduction in her obsessional distress when the hair had been extracted. Upon further inquiry, it also became evident that she engaged in other repetitive behaviors, such as moving objects from one spot to another (e.g., coffee cup across the desk), that served this same neutralizing function. She denied that the hairpulling itself was pleasurable or satisfying in any way. In this case, a diagnosis of OCD rather than TTM was thought to be most appropriate. Closely related to OCD is body dysmorphic disorder (BDD), characterized by obsessive preoccupation with an imagined defect in appearance or markedly excessive concern about a slight physical anomaly. Hairpulling that occurs in this context (e.g., a patient who spends excessive amounts of time checking, cutting, and pulling hairs thought to be “ugly”) might warrant a BDD diagnosis instead of, or in addition to, a diagnosis of TTM.

Individuals with ICDs have routinely been shown to be at high risk for mood, anxiety, and substance use disorders (Christenson et al., 1994; Desai & Potenza, 2008; Kessler et al., 2006; Odlaug & Grant, 2008). Because assessment of these co-occurring conditions is described in detail elsewhere in this volume, we do not reiter-

ate those descriptions here. Rather, we note simply that effective assessment of ICDs must pay particular attention to comorbidity, and that any comprehensive evaluation must include reliable and valid assessment of these conditions.

Functional Analysis

Establishing a diagnosis is a minimal criterion for treatment decision making, but it does not provide the necessary information to determine which specific interventions will help a given patient. For this task, a more fine-grained, comprehensive assessment is necessary. Functional analysis is based on the premise that all behavior is influenced by its antecedents (events that tend to precede the behavior) and consequences (events that tend to follow the behavior). “Antecedents” can be external (e.g., settings or activities that have become associated with the impulsive behavior) or internal (e.g., emotions, thoughts, or internal sensations that trigger the impulsive behavior). For the purpose of this assessment, “consequences” refers to immediate reinforcers for the behavior, whether positive (e.g., obtaining pleasurable sensations) or negative (e.g., escaping unpleasant sensations). Possible antecedents include setting, specific activities, thoughts, emotions, physiological sensations, arousal level, and urges to engage in the behavior. Consequences may include a change in thoughts, feelings, or physiological sensations during and immediately following the behavior, as well as tangible rewards, such as winning while gambling (in the case of PG, the intermittent and unpredictable nature of the reinforcer likely serves to prevent the behavior from extinguishing over long “dry spells”). In addition to a clinical interview, self-monitoring (e.g., Bijou, Peterson, & Ault, 1968), in which patients record their impulsive behavior along with their antecedents and consequences, can be useful in this regard.

Motivation and Ambivalence

Treatment for ICDs is characterized by high rates of premature discontinuation (e.g., Stewart & Brown, 1988), likely reflecting substantial ambivalence about the need for treatment or the benefits of changing. Therefore, clinical assessment is facilitated by attention to motivational factors. The *University of Rhode Island Change Assessment* (URICA; McConaughy, Prochaska, & Velicer, 1983) or *Stages of Change Readiness and Treatment Eagerness Scale* (SOCRATES; Miller & Tonigan, 1996) can be useful adjuncts to the assessment battery; these measures provide some initial assessment of the patient’s attitudes toward treatment, and can be used as a starting point for motivational enhancement discussions.

TREATMENT OF IMPULSE CONTROL DISORDERS

Table 16.2 depicts the published placebo- or wait-list-controlled trials of ICDs, including double-blind discontinuation studies. Open trials and studies in which two active treatments were compared in the absence of a placebo or wait-list control condition are not included. Although a detailed description of each study’s methodology and findings is beyond the scope of this chapter, some general observations are possible from Table 16.2. Several controlled trials have been published, with most

TABLE 16.2. Placebo- or Wait-List-Controlled Trials of Treatment of Impulse Control Disorders

Study	Treatment	ICD	N	Superior to placebo/ wait list?
<u>Psychopharmacological treatments</u>				
<i>Selective serotonin reuptake inhibitors</i>				
Christenson, MacKenzie, et al. (1991)	Fluoxetine	TTM	16	–
Streichenwein & Thornby (1995)	Fluoxetine	TTM	16	–
Simeon et al. (1997)	Fluoxetine	SP	21	+
Bloch et al. (2001)	Fluoxetine	SP	8	+
van Minnen et al. (2003)	Fluoxetine	TTM	43	–
Ninan, McElroy, et al. (2000)	Fluvoxamine	CB	23	–
Hollander et al. (2000)	Fluvoxamine	PG	10	±
Black et al. (2000)	Fluvoxamine	CB	23	–
Blanco et al. (2002)	Fluvoxamine	PG	32	–
Kim et al. (2002)	Paroxetine	PG	45	+
Grant et al. (2003)	Paroxetine	PG	76	–
Saiz-Ruiz et al. (2005)	Sertraline	PG	60	–
Koran et al. (2003)	Citalopram	CB	15	+
Grant & Potenza (2006b)	Escitalopram	PG + ANX	13	+
Koran, Aboujaoude, & Gamel (2007)	Escitalopram	KL	15	–
Koran, Aboujaoude, Sdvason, et al. (2007)	Escitalopram	CB	26	–
<i>Opioid receptor antagonists</i>				
Kim et al. (2001)	Naltrexone	PG	45	+
Grant, Potenza, et al. (2008)	Naltrexone	PG	77	+
Grant et al. (2006)	Nalmefene	PG	207	+
<i>Other antidepressants</i>				
Ninan, Rothbaum, et al. (2000)	Clomipramine	TTM	16	–
Black et al. (2007)	Bupropion	PG	39	–
<i>Mood stabilizers</i>				
Hollander et al. (2003)	Divalproex	IED	109	–
Hollander et al. (2005)	Lithium	PG + BD	40	+
<i>Atypical antipsychotics</i>				
Fong et al. (2008)	Olanzapine	PG	21	–
McElroy et al. (2008)	Olanzapine	PG	42	–
<i>Other medications</i>				
Grant, Kim, et al. (2007)	N-acetyl cysteine	PG	27	+
<u>Psychological treatments</u>				
<i>Cognitive-behavioral therapy</i>				
Sylvain et al. (1997)	Individual CBT	PG	29	+
Echeburua et al. (2000)	Individual and group RP	PG	69	+
Ninan, Rothbaum, et al. (2000)	Individual HRT	TTM	16	+
Ladoceur et al. (2001)	Individual CT + RP	PG	66	+
Ladoceur et al. (2003)	Group CT + RP	PG	58	+
van Minnen et al. (2003)	Individual HRT	TTM	43	+
Woods et al. (2006)	Group HRT + ACT	TTM	25	+
Mitchell et al. (2006)	Group CBT	CB	29	+

(cont.)

TABLE 16.2. (*cont.*)

Study	Treatment	ICD	N	Superior to placebo/ wait list?
<i>Cognitive-behavioral therapy (cont.)</i>				
Petry et al. (2008)	Brief individual CBT + MET	PG	180	±
McCloskey et al. (2008)	Group and individual CBT	IED	45	+
<i>Motivational enhancement therapy</i>				
Hodgins et al. (2001)	Single-session telephone MET + self-help workbook	PG	102	+
Petry et al. (2008)	Single-session individual MET	PG	180	–

Note. +, treatment superior to placebo/wait list; –, treatment not superior to placebo/wait list; ±, results mixed; TTM, trichotillomania; SP, skin picking; PG, pathological gambling; IED, intermittent explosive disorder; CB, compulsive buying; KL, kleptomania; ANX, anxiety; BD, bipolar disorder; CBT, cognitive-behavioral therapy; CT, cognitive therapy; RP, relapse prevention; HRT, habit reversal training; ACT, acceptance and commitment therapy; MET, motivational enhancement therapy.

involving selective serotonin reuptake inhibitors (SSRIs) or variants of cognitive-behavioral therapy (CBT). TM and PG have been the most frequently studied ICDs, with CB also examined in several studies. Although many studies have examined anger-management treatments, only two have specifically included patients with IED. Only one controlled study was identified for kleptomania, and none were identified for pyromania (one study of fire-setting youth, most of whom had conduct disorder, is not included here). Studies have generally been small, with a few noteworthy exceptions. Below, we briefly discuss the findings for each class of treatment.

Pharmacological Treatments

As noted previously, SSRI antidepressants are the most commonly studied class of treatments for ICDs. Results of these trials, however, have largely been disappointing. Fluoxetine was not superior to placebo in three trials for TTM (Ninan, Rothbaum, et al., 2000; Streichenwein & Thornby, 1995; van Minnen, Hoogduin, Keijsers, Hellenbrand, & Hendriks, 2003), although it was helpful in two small studies of skin picking (Bloch, Elliott, Thompson, & Koran, 2001; Simeon et al., 1997). Fluvoxamine has not proved convincingly superior to placebo in studies of PG (Blanco, Petkova, Ibanez, & Saiz-Ruiz, 2002; Hollander et al., 2000) or CB (Black, Gabel, Hansen, & Schlosser, 2000; Ninan, McElroy, et al., 2000). Similarly, sertraline was not superior to placebo for PG (Saiz-Ruiz et al., 2005). Paroxetine was superior to placebo in one trial for PG (Kim, Grant, Adson, Shin, & Zaninelli, 2002), but not in another (Grant et al., 2003). Citalopram and its enantiomer, escitalopram, have yielded mixed results in the treatment of CB (Koran, Aboujaoude, Solvason, Gamel, & Smith, 2007; Koran, Chuong, Bullock, & Smith, 2003). No effect was found in a small trial of escitalopram for kleptomania (Koran, Aboujaoude, & Gamel, 2007), although escitalopram did appear helpful in a small trial of patients with PG and co-occurring anxiety (Grant & Potenza, 2006b). Other antidepressant medications, including clomipramine (Ninan, Rothbaum, et al., 2000) and bupropion (Black et al., 2007), have not proved superior to placebo in controlled trials, although it is

noted that in one crossover study (not listed in Table 16.2), clomipramine did prove superior to desipramine in the treatment of TTM (Swedo, Leonard, et al., 1989). Mood-stabilizing medication appears useful for patients with PG and co-occurring bipolar disorder (Hollander, Pallanti, Allen, Sood, & Baldini Rossi, 2005) but not for IED in the absence of bipolar disorder (Hollander et al., 2003). Atypical or second-generation antipsychotics (olanzapine) have thus far proved unhelpful in the treatment of PG (Fong, Kalechstein, Bernhard, Rosenthal, & Rugle, 2008; McElroy, Nelson, Welge, Kaehler, & Keck, 2008).

Unlike the varied results from trials of traditional mood-regulating or antiobssessive medications, more consistent results have been obtained using opioid receptor antagonists, which have proved useful in the treatment of various substance use disorders (e.g., Martin, Jasinski, & Mansky, 1973; Volpicelli, Alterman, Hayashida, & O'Brien, 1992). Thought to modulate dopaminergic reward pathways, the opioid antagonists naltrexone and nalmefene have been demonstrated to reduce symptoms of PG (Grant, Kim, & Hartman, 2008; Grant, Potenza, et al., 2006; Kim et al., 2001) and have been proposed as a first-line treatment for that condition (Grant & Potenza, 2008).

Psychological Treatments

Several controlled studies attest to the efficacy of CBT for ICDs. In the case of TTM, CBT has incorporated habit reversal training (HRT; Azrin & Nunn, 1973), a multicomponent intervention that includes self-monitoring, awareness training, motivational enhancement, and practicing competing behavioral responses. Two studies found HRT-based CBT to be superior to placebo and to antidepressant medications (Ninan, Rothbaum, et al., 2000; van Minnen et al., 2003); another study found HRT plus acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999), a behavioral intervention that incorporates elements of mindfulness meditation, superior to wait list (Woods, Wetterneck, & Flessner, 2006). Relapse prevention strategies (e.g., Parks, Anderson, & Marlatt, 2001), originally developed to prevent the return of symptoms and to minimize the impact of lapses in recovered substance abuse patients, have shown promise when added to traditional cognitive and behavioral therapies for PG (Echeburua, Fernandez-Montalvo, & Baez, 2000; Ladouceur et al., 2001, 2003). CBT has also incorporated aspects of motivational enhancement therapy (MET; Miller & Rollnick, 2002), designed to increase acknowledgement of illness severity and willingness to change, from work in substance abuse. A single session of motivational enhancement alone was effective in one study of PG (Hodgins, Currie, & el-Guebaly, 2001), but not in another (Petry, Weinstock, Ledgerwood, & Morasco, 2008); however, a single session may not be sufficient for a robust treatment effect given the apparent chronicity and complexity of PG.

Although the evidence base for psychotherapies strongly favors cognitive-behavioral interventions, non-CBT forms of psychotherapy or counseling are also widely used. Among the most popular of these are support groups based on the 12-step model of substance use recovery, such as Gamblers Anonymous (GA). No controlled trials of these programs were identified; the existing data suggest high dropout rates and low efficacy (Stewart & Brown, 1988), which might be improved somewhat with the addition of professional psychotherapy (Russo, Taber, McCormick, & Ramirez,

1984). Psychodynamic treatments for ICDs have also been described (e.g., Koblenzer, 1999; Krueger, 1988; Rosenthal, 1986), although no systematic outcome data have been identified.

SUMMARY AND FUTURE DIRECTIONS

The category of ICDs encompasses a wide and apparently diverse range of conditions, including IEC, kleptomania, pyromania, PG, and TTM, as well as NOS conditions such as CB and skin picking. The presumed underlying feature of each of these disorders is “impulsivity,” an inability to resist impulses to engage in ultimately self-destructive behavior or behaviors with deleterious long-term consequences (Grant & Potenza, 2004). However, alternative conceptualizations for ICDs, such as compulsivity and addiction-based models, have also been suggested. To date, there is no clear consensus about the optimal classification of ICDs, or even whether all ICDs should be classified together. For example, it is not clear whether TTM and PG represent parts of a unified category of behaviors with similar underlying characteristics, or whether they are more similar to other conditions (e.g., TTM with OCD, PG with substance use disorders). Additional laboratory, epidemiological, and taxometric research is needed to understand better the uniqueness of ICDs, their relationship to impulsivity more broadly, and their relationship to other psychiatric spectra.

Numerous tools have been developed for the assessment of ICDs, including self-report and laboratory-based measures of general impulsivity, as well as self-report measures, semistructured interviews, and interviewer rating scales aimed at measuring the specific features associated with each of the different ICDs. Effective assessment strategies are considered an essential part of treatment planning and the evaluation of treatment outcomes. Results of treatment outcome studies for ICDs have been mixed; although SRI medications have not consistently performed well in controlled trials, CBT and opioid antagonists appear promising. The only direct comparisons between CBT and medications (two studies of TTM) have favored CBT. Additional research is needed to determine the efficacy of pharmacological and psychological treatments for ICDs, and to determine best practices for intervention.

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