Assessing Addiction: Concepts and Instruments

Efficient, organized assessment of substance use disorders is essential for clinical research, treatment planning, and referral to adjunctive services. In this article, we discuss the basic concepts of formalized assessment for substance abuse and addiction, as established by the *Diagnostic and Statistical Manual of Mental Disorders*, *4th Edition, Text Revision,* and describe six widely used structured assessment instruments. Our aim is to help researchers and clinical programs identify the instruments that best suit their particular situations and purposes.

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The appropriate way to assess a substance use disorder depends on the objective. Unstructured clinical interviews serve well enough for many purposes, such as satisfying third-party diagnostic requirements for reimbursement. For many essential clinical and research purposes, however, only structured (scripted) interviews afford sufficient information and reliability. Structured instruments assist treatment planning by providing a standardized comparison of a patient's characteristics with those of patients who have benefited from interventions in clinical trials. Clinicians also obtain a comprehensive, objective picture of the auxiliary services the patient may need to benefit maximally from treatment. In research, these instruments yield the diagnostic consistency that is indispensable to avoid misclassifying patients and compromising the interpretation of research results.

This article aims to help clinicians and researchers choose the structured assessment instruments appropriate for their needs. For six widely used instruments, we describe the validity and reliability characteristics; administration procedures; training requirements; and advantages and disadvantages based on patient population, treatment orientation, and staff skills. The instruments are the

- Addiction Severity Index (ASI);
- Composite International Diagnostic Interview (CIDI);
- Structured Clinical Interview for DSM-IV (SCID);
- Alcohol Use Disorders and Associated Disabilities Interview Schedule (AUDADIS);
- Psychiatric Research Interview for Substance and Mental Disorders (PRISM); and
- Semi-Structured Assessment for Drug Dependence and Alcoholism (SSADDA).
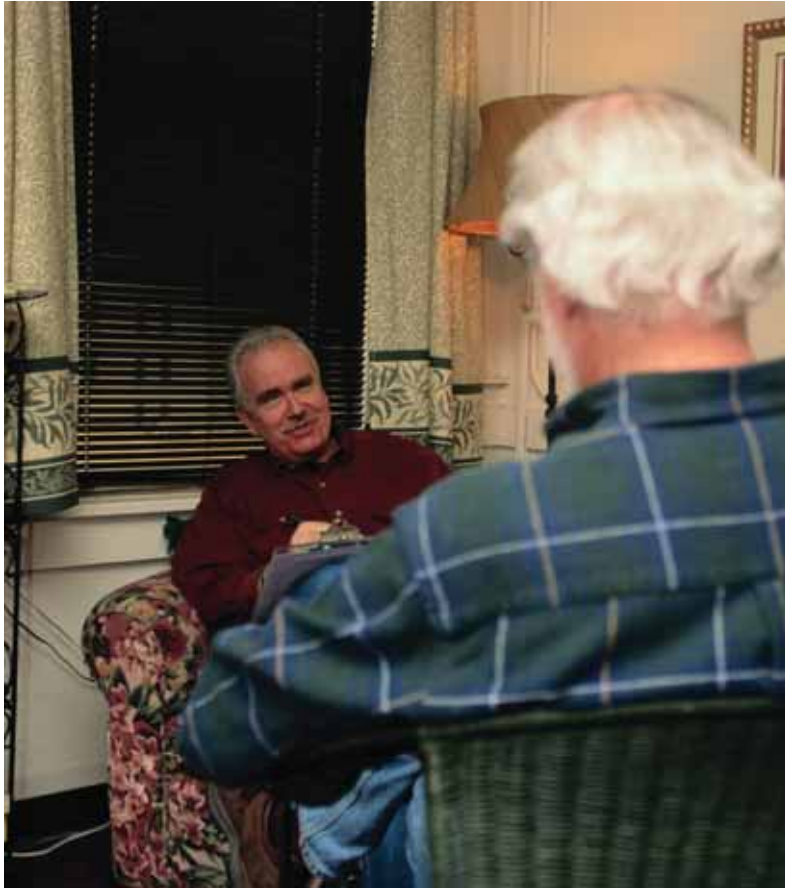
WHY CHOOSING THE RIGHT INSTRUMENT MATTERS

The choice of assessment instrument can make the difference between null and significant research findings.

Dr. A. Thomas McLellan, principal developer of the ASI, has often contrasted two patients to illustrate the clinical importance of thorough assessments, such as those yielded by the ASI. One patient, a physician, is severely physiologically addicted to opiates. The other, a young woman, has a milder physiological addiction. An assessment that focuses narrowly on drug abuse history might stop here, leaving the impression that the physician faces the greater challenge to recovery. A more thorough evaluation, however, finds that the physician's interpersonal relationships, although troubled, are still in place, and he is still working. The young woman, on the other hand, has no social supports except other drug abusers, is unemployed, and has never kept a job for long. In fact, she is the one with greater service needs—in particular, training in social and occupational skills.

In research, an appropriate assessment instrument can make the difference between null and significant findings. A recent review of trials to determine whether tricyclic antidepressants can help substance abusers with comorbid depression provides an illustrative example

(Nunes and Levin, 2004). Early trials demonstrated little or no benefit from the medications. These trials admitted patients based on their current depressive symptoms as itemized in instruments such as the Hamilton Depression Scale (Hamilton, 1960) or the Beck Depression Inventory (Beck et al., 1961). Participants would have included some individuals who had comorbid major depression and others who were experiencing transient low moods related to intoxication, withdrawal, or stress reactions. More recent studies, in contrast, admitted only individuals who met formal diagnostic criteria for major depressive disorder, which include persistent symptoms over a period of time. Some recent studies also delayed assessment until candidates had been abstinent for a week to ensure that they were past withdrawal. In these more uniform populations, the medications consistently alleviated patients' depression and also modestly improved their substance abuse outcomes.

GENERAL FEATURES OF ASSESSMENT INSTRUMENTS

The assessment instruments we will discuss, with the exception of the ASI, all elicit the information required to diagnose substance use disorders and other psychiatric disorders according to the criteria of the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision* (DSM-IV; American Psychiatric Association, 2000). Those criteria, the product of more than 30 years of development and testing, now set the standard for both research and clinical assessment (see "The DSM and Standardized Assessment"). Where the instruments differ is in

- Format—that is, whether they are fully structured or semi-structured;
- The particular clinical or research objectives they can serve;
- Reliability and validity for selected uses (see "Reliability and Validity");
- Convenience features, such as modularity and availability in computer-based formats; and
- Training requirements.

Fully Structured Versus Semi-Structured Formats

A fully structured assessment instrument is a script. It specifies the questions the interviewer is to ask, exactly as written, as well as a choice of responses for the interviewee. When asking the questions, the interviewer skips some, based on patient characteristics or previous responses, and avoids adding probes of his or her own. A semi-

structured instrument similarly lists questions to be read verbatim, but also allows the interviewer to add followup queries based on his or her clinical interpretation of the interviewee's initial response.

Both formats have advantages and disadvantages. Fully structured interviews are economical. They require no clinical judgment, so trained lay interviewers can administer them. They generally take less time to administer. Many large research studies and large treatment facilities use fully structured instruments, because staff members with little experience can perform the initial and followup assessments. Semi-structured interviews, in contrast, through their open-ended probes, provide greater detail on the client's status.

Convenience Features

Many assessment instruments are modular, permitting flexibility in the choice of sections used and diagnoses assessed. Thus, for example, researchers or clinicians who do not encounter psychotic individuals because of program regulations or a research protocol may omit a psychosis module.

Several structured and semi-structured diagnostic interviews are available in computer-assisted formats. Interviewers read questions to interviewees and enter responses into a computer rather than a paper form. This reduces administration time and rater error, as the program automatically skips or adjusts the wording of questions based on patients' previous responses. Further, computerized administration saves many hours of data entry and avoids the errors that can occur in transferring data from paper into a computer database for analysis. Computerizing the logic of the interview also reduces the need for post-interview data cleaning. The data go directly into a database that can immediately generate reports and statistics.

A BASIC MENU OF ASSESSMENT INSTRUMENTS

Of the instruments we discuss here, the ASI and CIDI make up the common assessment battery of the National Institute on Drug Abuse (NIDA) Clinical Trials Network (CTN), which conducts studies to evaluate evidence-based treatment interventions in widely diverse community-based treatment settings and patient populations nationwide. Prior to adopting these measures, a CTN workgroup evaluated many measures for reliability, validity, efficiency, and suitability for widespread use in nonresearch settings.

The widely used SCID was the first standardized psychiatric interview based on the DSM and has been updated to correspond to the most current DSM criteria. The AUDADIS, PRISM, and SSADDA were specifically designed for substance abuse research, but are adaptable for clinical purposes, too.

Brief descriptions of these instruments follow. For a summary comparison of their properties, see Table 1.

The Addiction Severity Index

The ASI (McLellan et al., 1980, 1992) screens for problems and impairments that commonly accompany drug abuse and dependence. These include, among others, interpersonal difficulties with family, friends, and co-workers; medical conditions such as hepatitis B and C, HIV/AIDS, sexually transmitted diseases, alcoholic liver disease, acute myocardial infarction, pneumonia, and metabolic and endocrine complications (Kresina et al., 2004; Mertens et al., 2003); and legal troubles. The ASI provides information that clinicians can use to address these problems with appropriate interventions or referrals.

The semi-structured ASI evaluates patients' functioning and lifetime experiences in seven domains: (1) medical conditions, (2) employment/support, (3) use of alcohol and drugs, (4) legal issues, (5) family history,

THE DSM AND STANDARDIZED ASSESSMENT

The year 1980 saw the publication of an epochal document in psychiatry: *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition* (DSM-III; American Psychiatric Association, 1980). The DSM-III provided clinicians and researchers with standardized definitions and diagnostic criteria for more than 200 psychiatric disorders, including substance abuse and dependence disorders. Prior to this publication, clinicians and researchers commonly used the same diagnostic terms to mean different things, and clinicians often disagreed on whether patients had specific disorders (Spitzer, Endicott, and Robins, 1975; Spitzer and Fleiss, 1974). Substance abuse professionals engaged in semantic debates over the definition of addiction—even over the very existence of such a condition.

Following the publication of the DSM-III, diagnostic criteria were included in the mental disorders section of the *International Classification of Diseases, 10th Edition* (ICD-10; World Health Organization, 1993). The ICD-10 is widely used outside the United States to define psychiatric diagnoses.

Substance Use Disorders in DSM-IV

The current edition of the DSM, DSM-IV-TR, sets diagnostic criteria for two types of substance use disorder: dependence and abuse. Some patients seeking treatment report too few symptoms to meet the criteria for either diagnosis. In these cases, the specific symptoms, symptom clusters, and the severity of associated problems can inform effective strategies for intervention and management.

The ICD-10 criteria for substance dependence are similar to those of the DSM-IV. The ICD-10 counterpart to abuse is called "harmful use" and is less specific.

Substance Dependence

Drug or alcohol dependence is diagnosed by documenting that a patient has experienced at least three of seven criteria for a particular substance within a 12-month period. The criteria are:

- Tolerance
- Withdrawal
- Substance often taken in larger amounts or over longer period than intended
- Persistent desire or unsuccessful efforts to cut down or control use
- Great deal of time spent in activities necessary to obtain, use, or recover from the substance
- Important social, occupational, or recreational activities given up or reduced
- Continued use despite knowledge of having a persistent or recurrent physical or psychological problem likely to have been caused or exacerbated by the substance

Although the DSM-IV provides no standards for dependence severity, clinicians may specify "with physiological dependence" or "with withdrawal" to indicate the presence of tolerance (i.e., the need for higher doses to achieve intoxication or other desired effects). Withdrawal, in particular, predicts medical problems and poor outcome (Hasin et al., 2000; Schuckit et al., 2003). Alternatively, a symptom or criteria count can function as a measure of dependence severity (Hasin et al., 2006*b*).

The DSM-IV lists substance-specific intoxication and withdrawal symptoms for most of the common classes of drugs. Two exceptions are hallucinogens and cannabis, neither of which had a known withdrawal syndrome at the time of the document's publication. Planners for the DSM-V are considering the addition of a withdrawal syndrome for cannabis. In anticipation of such a potential change, the CIDI and AUDADIS interviews contain items related to possible marijuana withdrawal.

Test-retest studies have repeatedly shown good to excellent reliability for the diagnosis of substance dependence with the DSM-IV (Bucholz et al., 1995; Chatterji et al., 1997; Easton et al., 1997; Grant et al., 1995, 2003; Hasin et al., 1996, 1997*a*; Horton, Compton, and Cottler, 2000; Williams et al., 1992). The DSM-IV substance dependence diagnosis also shows good validity in two forms of multi-method comparisons. One compares ICD-10, DSM-IV, and DSM-III-R diagnoses obtained from a single diagnostic interview (Grant, 1993; Hasin et al., 1997*b*; Schuckit et al., 1994). The other compares diagnoses from a single system (such as DSM-IV) produced by different diagnostic interviews (Cottler et al., 1997; Pull et al., 1997).

Studies of families with alcohol problems have validated the criteria for the substance dependence diagnosis. A family history of alcohol problems is strongly associated with DSM-IV alcohol dependence (Hasin et al., 1997*c*; Hasin and Paykin, 1999). In addition, animal models support the validity of many elements of dependence (Robinson, 2004; Tapper et al., 2004), and neuroscientists and geneticists are finding links to biological variations that increase or reduce the risk for dependence (e.g., Edenberg et al., 2004; Hogg and Bertrand, 2004).

Substance Abuse

Patients who do not meet the criteria for substance dependence may be diagnosed with substance abuse if they report experiencing one or more of four abuse symptoms repeatedly over a 12-month period. The symtoms are:

- Failure to fulfill major obligations at work, school, or home
- Recurrent use in situations in which it is physically hazardous
- Recurrent substance-related legal problems
- Continued use despite persistent social or interpersonal problems

Many clinicians have questioned the separation of substance dependence and substance abuse. Studies have shown that the DSM criteria for abuse are less valid than those for dependence. However, these studies diagnosed substance abuse hierarchically, meaning that an abuse diagnosis was considered to be redundant if dependence was present. Although DSM-IV stipulates this procedure, not everyone with dependence also meets the criteria for abuse (Hasin and Grant, 2004). Women and minorities appear especially likely to experience dependence without abuse (Hasin et al., 2005; Hasin and Grant, 2004). Studies that assessed abuse regardless of whether dependence was present showed better reliability for the criteria for abuse (Bucholz et al., 1995; Canino et al., 1999; Cottler et al., 1997; Pull et al., 1997). In summary, the DSM-IV hierarchical status of abuse is problematic, but the criteria yield reliable diagnoses.

DSM-IV and Substance Use Comorbidity

Extensive comorbidity between substance use disorders and other psychiatric disorders has been reported consistently in patients (Nunes, Hasin, and Blanco, 2004) as well as in the general population (Grant et al., 2004a, 2004b; Regier et al., 1990). Such comorbidity can be serious. For example, studies with acceptable response rates (70 percent or more) and reliable diagnostic assessments have consistently found an adverse effect of major depression on the outcome of substance use disorders (Hasin, Nunes, and Meydan, 2004). Further, among patients with histories of substance dependence and major depression, the occurrence of a major depressive episode during periods of sustained abstinence predicts a higher number of suicide attempts (Aharonovich et al., 2002).

To be accurate, assessments must address the fact that substance intoxication and withdrawal can mimic symptoms of depression, psychosis, or other independent psychiatric disorders. Accordingly, the DSM-IV distinguishes among "expected effects" of substance intoxication or withdrawal, "primary disorders," and "substance-induced disorders." A primary disorder is diagnosed if "the symptoms are not due to the direct physiological effects of a substance" (American Psychiatric Association, 2000). Psychiatric disorders that co-occur with substance intoxication or withdrawal can be considered primary if (1) symptoms substantially exceed the expected effects of the substance in the amount that was used; (2) there is a personal history of psychiatric symptoms during periods of extended abstinence; (3) the onset of psychiatric symptoms clearly preceded the onset of substance use; and (4) symptoms persisted for at least a month after the cessation of intoxication or withdrawal. Symptoms that are not considered primary fall into the category either of expected effects of a substance or of a substance-induced disorder that exceeds intoxication or withdrawal effects and deserves independent clinical attention. Instrument developers have incorporated this information into some tools, in particular the SSADDA and PRISM.

(6) family/social relationships, and (7) psychiatric disorders. The administrator asks the patient to rate his or her level of distress in each domain during the past 30 days from 0 (none) to 4 (extreme) and independently rates the patient's need for treatment in each domain from 0 (none necessary) to 9 (treatment needed to intervene in a life-threatening situation). Finally, the administrator calculates a composite score from a subset of the distress and treatment need responses. This score becomes the basis for treatment planning. Altogether, the ASI takes approximately 45 to 60 minutes to administer, plus 10 to 20 minutes for post-interview scoring.

The ASI's psychometric properties have been tested extensively (Alterman et al., 1994; Hodgins and el-Guebaly, 1992; Joyner, Wright, and Devine, 1996; Kosten, Rounsaville, and Kleber, 1983; McLellan et al.,

1985; Rogalski, 1987). Several studies have demonstrated good to excellent reliability and validity for the instrument (Butler et al., 2001; Hendriks et al., 1989; Leonhard et al., 2000; Weisner, McLellan, and Hunkeler, 2000). A 2004 summary of studies in multiple patient groups (Mäkelä) found that the reliability of composite scores varied from high (Daeppen et al., 1996; McLellan et al., 1985; Peters et al., 2000) to low (Drake, McHugo, and Biesanz, 1995; Zanis et al., 1994; Zanis, McLellan, and Corse, 1997). Three of the seven ASI domains (medical conditions, use of alcohol, and psychiatric disorders) have high internal consistency across studies, while the other four are more variable. Correlations between domains are usually low, except those between the drug and legal measures and those between the psychiatric and social impairment measures. The lack of across-the-

board correlations is consistent with the ASI's perspective, which is that impairment in some domains does not necessarily entail impairment in others.

The ASI, by itself, may not be a highly reliable screen for special populations, such as the homeless or dually diagnosed. For the latter groups, the ASI should be supplemented with instruments that assess comorbidity in greater depth, such as the PRISM or the SSADDA.

Interviewer training and experience enhance the validity of ASI results (Mäkelä, 2004). Standardized training is available and consists of a 2-day classroom component and materials for independent study (see www.tresearch.org/training/asi_train.htm).

Many community programs include the ASI in their initial assessment battery, but informal reports suggest that some look upon it as merely required paperwork and use its information minimally, if at all, in treatment. To remedy this situation, the NIDA/Substance Abuse

Alcohol Tolerance Item From the World Mental Health Composite International Diagnostic Interview (WMH-CIDI)

ALCOHOL DEPENDENCE Did you ever need to drink a larger amount of alcohol to get an effect, or did you ever find that you could no longer get a "buzz" or a high on the amount you used to drink?	YES (1)	NO (5)	DK (8)	RF (9)

Source: Kessler and Ustün, 2004. Abbreviations: DK, don't know; RF, refused. Numbers are codes for recording the four responses.

and Mental Health Services Administration (SAMHSA) Blending Initiative has produced a curriculum on transforming ASI data into clinically useful information (see www.nida.nih.gov/Blending/ASI.html).

The Composite International Diagnostic Interview
The CIDI, originally developed by the World Health Organization, assesses 22 DSM-IV diagnoses, including mood, anxiety, and substance use disorders (see "Alcohol Tolerance Item From the World Mental Health Composite International Diagnostic Interview (WMH-CIDI)"). For each substance use disorder, the CIDI elicits other information useful for treatment planning, such as the patterns and course of alcohol and drug use. The fully structured instrument takes approximately 120 minutes to administer in its entirety (Kessler and Ustün, 2004).

Various versions and adaptations of the original CIDI have been developed. The University of Michigan version, the UM-CIDI, has been used in a large international epidemiological survey (Wittchen and Kessler, 1994), but appears to produce lower prevalence estimates than other diagnostic instruments (Wittchen et al., 1998). To address this problem and others related to earlier versions of the CIDI, the World Mental Health Survey Initiative Version, the WMH-CIDI, was developed (Kessler and Ustün, 2004). A complete description of WMH-CIDI modifications is reported elsewhere (Kessler and Ustün, 2004). The WMH-CIDI is available in paper and computerized forms for download or computer-assisted administration at www.hcp.med.harvard.edu/wmhcidi/instruments.php.

Programs or projects may use the CIDI substance use sections alone or combine them with other sections to achieve the desired range of assessment. To meet the particular needs of the substance abuse field, researchers have developed the CIDI Substance Abuse Module (CIDI-SAM), an expanded version of the original CIDI substance use section that elicits detailed information on such areas as the onset and history of substance abuse, withdrawal symptoms, common comorbidities, social consequences, and treatment history (Cottler, Robins, and Helzer, 1989; Horton, Compton, and Cottler, 2000; epi.wustl.edu/epi/assessments/sam.htm).

Test-retest studies of the original CIDI and the CIDI-SAM paper versions have demonstrated good to excellent reliability for DSM-IV diagnoses of any substance use disorder or substance dependence and fair to good reliability for abuse (Rubio-Stipec, Peters, and Andrews, 1999; Wittchen et al., 1998). The reliability of the CIDI, version 3.0, was tested in the WHO World Mental Health Surveys by comparing CIDI-derived diagnoses to those derived with the SCID (Haro et al., 2006). Concordance for alcohol dependence (with or without abuse) was excellent; concordance for drug dependence (with or without abuse) was fair; and concordance for alcohol abuse and drug abuse was good.

NIDA's CTN adopted the CIDI after comparing five commonly used substance use disorder diagnostic instruments on 26 criteria, including psychometric properties, diagnostic time frames, time to administer, and training and financial considerations (Forman et al., 2004). The CTN workgroup ultimately determined that only the CIDI met three crucial CTN requirements: it can be administered by trained research technicians with no prior clinical experience; it provides for DSM-IV, as

TABLE 1. Characteristics and Selected Assessment Categories of Six Structured Assessment Instruments

Instrument	Diagnostic Classification	Assessment Categories*	Time Frames Covered by the Assessments	Average Administration Time in Psychiatric Populations	Training
Addiction Severity Index (ASI)[†‡]	No assessment of diagnosis	Functioning in 7 domains: alcohol, drugs, psychiatric, family/social, medical, employment/support, legal	Lifetime, past 30 days	45-60 min., plus 10-20 min. for scoring	Training manual, classroom session (2 days), competency measures administered at end of each session
World Mental Health Composite International Diagnostic Interview (WMH-CIDI)[‡]	*Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* (DSM-IV), *International Classification of Diseases, 10th Edition* (ICD-10)	DSM-IV Alcohol/Drug Abuse and Dependence ICD-10 Alcohol/Drug Dependence ICD-10 Harmful Use Alcohol/Drugs DSM-IV/ICD-10 Nicotine Dependence DSM-IV/ICD-10 Anxiety Disorders DSM-IV/ICD-10 Mood Disorders DSM-IV Attention Deficit Disorder DSM-IV/ICD-10 Conduct Disorder DSM-IV Intermittent Explosive Disorder DSM-IV/ICD-10 Pathological Gambling	Lifetime, past 12 months	75 min.	Home-study CDs, classroom training (2.5-3 days)
Structured Clinical Interview for DSM-IV (SCID)[†‡]	DSM-IV	Alcohol/Drug Dependence and Abuse, Polysubstance Dependence Anxiety Disorders, Substance-Induced (S-I) Anxiety Disorders Mood Disorders (Dysthymic Disorder, current only), S-I Mood Disorders Acute Stress Disorder Adjustment Disorder (current only) Personality Disorder (Axis II version[§]) Psychotic Disorders, S-I Psychotic Disorders Somatization Disorder (current only)	Lifetime, current	90 min.	User's guide, didactic recordings (11 hours), interview recordings, on-site training (1-2 days), audiotape review for quality assurance
Alcohol Use Disorders and Associated Disabilities Interview Schedule (AUDADIS)[†‡]	DSM-IV	Alcohol and Drug Consumption, Alcohol/Drug Abuse and Dependence Tobacco Use and Dependence Anxiety Disorders, S-I Anxiety Disorders Mood Disorders, S-I Mood Disorders Pathological Gambling Personality Disorders Treatment Utilization (for each diagnosis), Family History (for each diagnosis)	Lifetime, past 12 months	No information available	Not available
Psychiatric Research Interview for Substance and Mental Disorders (PRISM)[†¶]	DSM-IV	Alcohol/Drug Abuse and Dependence Nicotine Dependence Anxiety Disorders, S-I Panic Disorder, S-I Generalized Anxiety Disorder Mood Disorders, S-I Mood Disorders Antisocial Personality Disorder, Borderline Personality Disorder Psychotic Disorders, S-I Psychotic Disorders	Lifetime, past 12 months, current	120 min.	Training manual, didactic session (2 days), audiotape review for quality assurance
Semi-Structured Assessment for Drug Dependence and Alcoholism (SSADDA)[‡]	DSM-IV	Alcohol/Drug Abuse and Dependence Antisocial Personality Disorder Attention Deficit Hyperactivity Disorder Major Depression, Bipolar Disorder Pathological Gambling Post-Traumatic Stress Disorder	Lifetime	No information available	Training manual, didactic session (3 days), audiotape review for quality assurance

* Assessment categories include Axis I and II disorders that commonly co-occur with abuse and dependence.
† Spanish language version available.
‡ Computerized version available.
§ The SCID features separate versions for Axis I and II disorders.
¶ Computerized version available in 2008.

Alcohol Use Screening From the Structured Clinical Interview for DSM (SCID)

ALCOHOL USE SCREENING

What are your drinking habits like?

How much do you drink?

Has there ever been a time in your life when you had five or more drinks on one occasion?

When in your life were you drinking the most?

How long did that period last?

During that time...

How often were you drinking?

What were you drinking? How much?

During that time...

Did your drinking cause problems for you?

Did anyone object to your drinking?

Sources: First et al., 2002; Williams et al., 1992.

well as *International Classification of Diseases, 10th Edition* (ICD-10; World Health Organization, 1993), substance use disorder diagnoses; and it provides for past-year and lifetime diagnoses. At this point, it is too soon to know whether CTN-related community-based programs will adopt the CIDI for clinical use.

The Structured Clinical Interview for DSM-IV

The SCID is available in different versions for researchers and clinicians. Additionally, the research version is available in formats for patients, nonpatients, and patients with psychotic disorders. The Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition (First et al., 2002), provides lifetime and current diagnostic assessments for many DSM-IV disorders, including substance use disorders. The separate SCID for Axis II disorders provides the basis for diagnosing personality disorders (First et al., 1997).

The semi-structured SCID is designed for administration by interviewers with clinical expertise, but research assistants having extensive experience with a population under study have sometimes learned to administer it successfully. After an open-ended overview and brief general screening, the interviewer takes the patient through the questions on the form, following up as needed (based on clinical judgment) to clarify responses. The alcohol and drug modules contain open-ended screening questions as well (see "Alcohol Use Screening From the Structured Clinical Interview for DSM (SCID)"). Administration can take up to several hours, depending on the complexity of the patient's

substance and psychiatric history. The instrument is modular, so clinicians can make use of only those sections that pertain to assessment aims. It contains a minimal number of nondiagnostic items to keep administration time as brief as possible.

In tests among substance-abusing populations, the SCID has demonstrated excellent reliability for diagnosing DSM-III-R substance dependence (American Psychiatric Association, 1987; Ross et al., 1995). A small test-retest study of 52 patients with DSM-IV diagnoses showed excellent reliability for substance use disorders (Zanarini et al., 2000). The SCID Web site (www. scid4.org/index.html) provides information on the different versions, psychometric properties, ways to obtain copies of the interview and training materials, and procedures for arranging on-site training. A user's guide provides basic training in the use of the SCID. In addition, an 11-hour videotape training program is available with examples of interviews with actual patients. The instrument's developers recommend at least 20 hours of training on the full SCID for most clinicians. A Spanish-language version of the SCID (research version), in which only the questions have been translated, and a computer-assisted SCID (for Axis I disorders, clinician version), developed by an outside source, can be obtained through the SCID Web site.

The Alcohol Use Disorder and Associated Disabilities Interview Schedule

The AUDADIS (Grant et al., 1995, 2003) provides for current (last 12 months) and lifetime DSM-IV diagnoses of major mood, anxiety, personality, and substance use disorders. Originally developed by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) for use in population-based epidemiological surveys, the fully structured AUDADIS functions as an economical tool that lay staff in treatment programs can administer for intake screening. Clinicians can use the detailed descriptive data obtained by the AUDADIS to structure treatment based on a patient's specific substance-related behaviors. In addition to alcohol, tobacco, and other drug use, modules address treatment and family history. Numerous queries address the frequency and quantity of use of each type of alcohol (e.g., beer, wine, liquor) and each illicit drug during three time periods—that of heaviest use, the past 12 months, and the interviewee's lifetime (see "Sample Item From the Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS)").

The AUDADIS showed high reliability in a test-retest study in clinical settings where comorbidity was expected to be high (Hasin et al., 1996). Its test-retest reliabilities for alcohol and drug consumption, abuse, and dependence, as well as those for other modules, were good to excellent (Grant et al., 1995, 2003). The AUDADIS interview can be downloaded (niaaa.census.gov/questionaire.html). The instrument's developers recommend using the computer-assisted version.

The Psychiatric Research Interview for Substance and Mental Disorders

The PRISM (Hasin et al., 1996, 2006*a*; Hasin, Trautman, and Endicott, 1998) is a semi-structured diagnostic interview designed expressly for assessing comorbid psychiatric disorders in individuals who abuse substances. The instrument's strength is in differentiating independent psychiatric disorders, such as depression, from the effects of intoxication and withdrawal. Along with abuse and dependence diagnoses for specific substance categories, clinicians and researchers can use the PRISM to make current and lifetime DSM-IV diagnoses of Axis I and Axis II disorders that commonly occur with substance abuse, such as mood, anxiety, and psychotic disorders.

The PRISM sections on substance use disorders are placed at the beginning of the interview and provide a background for the overall clinical picture. Periods of chronic intoxication (defined as "at least 4 days a week for a month") or binge use (defined as "most of the day for 3 or more days") and extended periods of abstinence are identified and charted on a timeline. The timeline is the only part of the PRISM that is conducted in an unstructured format, and timeline information is not coded for data entry. The purpose of the timeline is to assist in differentiating primary versus substance-induced symptoms in later diagnostic sections.

PRISM developers incorporated two features into the instrument to avoid the lengthy administration time associated with many standardized interviews. First, diagnostic sections are modular, so the instrument can be tailored to fit specific treatment or research needs. Second, consumption questions in the substance use module do not seek detailed information about patterns, but simply ask how often the interviewee has used the substance "in the last 12 months" or "ever" and whether the individual has ever experienced a period of chronic intoxication or binge use. If the response to any of these broad questions is "yes," the interviewer moves on to the abuse and dependence diagnostic module.

A recent test-retest study of 285 heavy substance users showed good to excellent reliability for most dependence diagnoses, including alcohol, cocaine, heroin, cannabis, and sedative dependence (Hasin et al., 2006*a*).

Sample Item From the Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS)

Now I'd like to ask you about drinking beer. 5a. During the last 12 months, did you drink any beer, light beer or malt liquor? Do not count nonalcoholic beers. Statement D	1 __ Yes 2 __ No – *SKIP to Statement E, page 11*
5b.*(SHOW FLASHCARD 12)* During the last 12 months, about how often did you drink any beer or malt liquor?	1 __ Every day 2 __ Nearly every day 3 __ 3 to 4 times a week 4 __ 2 times a week 5 __ Once a week 6 __ 2 to 3 times a month 7 __ Once a month 8 __ 7 to 11 times in the last year 9 __ 3 to 6 times in the last year 10 __ 1 or 2 times in the last year

Sources: Grant et al., 1995, 2003.

An independently conducted validity study of a Spanish-language version of the PRISM with the Longitudinal, Expert, All-Data Diagnosis (LEAD) procedure (Spitzer, 1983) as the "gold standard" and the SCID found that the concordance of the three assessments in substance dependence was good to excellent. However, PRISM/LEAD concordance was significantly better than SCID/LEAD concordance on current cannabis and cocaine dependence, as well as past alcohol abuse and dependence (Torrens et al., 2004). The English version of the PRISM can be downloaded, together with training information (www.columbia.edu/~dsh2/prism). A computer-assisted version, which will include questions on marijuana withdrawal and modules for nicotine-related disorders, pathological gambling, and attention deficit hyperactivity disorder, will be available in 2008.

The Semi-Structured Assessment for Drug Dependence and Alcoholism

The SSADDA (Pierucci-Lagha et al., 2005) was developed for use in studies of genetic influences on cocaine

and opioid dependence. Derived from the Semi-Structured Assessment for the Genetics of Alcoholism, the SSADDA provides extensive coverage of the physical, psychological, social, and psychiatric manifestations of cocaine and opioid abuse and dependence in addition to a number of related Axis I and Axis II disorders. A standout feature of the SSADDA is its inclusion of questions about the onset and recency of individual alcohol and drug symptoms, permitting a temporal assessment of symptom clusters. Information about the timing of symptoms is particularly helpful in distinguishing comorbid disorders from intoxication or withdrawal effects.

The reliability of individual dependence criteria in the SSADDA has been tested to determine the extent to which independent interviewers arrive at the same diagnostic conclusions. Overall, the inter-rater reliability estimates were excellent for individual DSM-IV criteria for nicotine and opioid dependence; good for alcohol and cocaine dependence; and fair for dependence on cannabis, sedatives, and stimulants (Pierucci-Lagha et al., 2007). A computer-assisted version of the SSADDA is available free. Further information can be obtained by contacting Dr. Amira Pierucci-Lagha, Alcohol Research Center, Department of Psychiatry, University of Connecticut School of Medicine.

The SSADDA was developed for studies of genetic influences on cocaine and opioid dependence.

CONCLUSION

The publication of the DSM-III ushered in a period of standardized assessment and diagnosis in mental health research. Several widely used structured and semi-structured instruments for assessing dependence, co-occurring psychiatric disorders, and associated problems have shown good reliability, validity, and acceptance in clinical research settings. These instruments are now being used in community settings to inform treatment planning and case management.

Regardless of their original purposes, all of the measures described in this paper can be used for both research and treatment. The decision to use one instrument rather than another will depend on a number of practical considerations. Reliability and validity often vary considerably between specific drug categories. Thus, a review of the strength of the specific drug diagnoses of interest is important. Users will need to consider whether disorders other than substance use or other characteristics of interest are covered and, when necessary, if the instrument is available in a language other than English. Staff level of experience and training costs are also key factors in evaluating the appropriateness of an instru-

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ment for a particular research or treatment setting.

Most of the measures are in modular format. Substance disorder and other modules, along with a measure of problem severity like the ASI, can serve as the basis of a thorough intake interview and, as the patient progresses through treatment, can be used to assess changes in status systematically. Modules from different instruments can be combined, but this can be complicated if computer-assisted versions are used. In addition, even the most user-friendly computer-assisted instruments require staff with technical know-how, and computer and software costs and licensing fees can be high in relation to budget allowances. Conversely, paper-and-pencil versions consume additional staff time for data cleaning and data entry, require repeated printing, and can take up a great deal of storage space, depending on the sample or patient population size. Thus, a thorough cost estimate is needed before deciding whether to use a paper-and-pencil or computerized format.

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RESPONSE: ASSESSING THE INSTRUMENTS

Jack D. Blaine, M.D.; Robert F. Forman, Ph.D.; and Dace Svikis, Ph.D.

Jack Blaine: Except for the ASI, the instruments discussed in the article (Samet et al., 2007) were developed for research. The AUDADIS, as the authors note, was created for use in large-scale epidemiological research in the general population. It's a very fine, fully structured interview. A research assistant with no clinical training can make valid diagnoses. The SCID and the PRISM were developed to be administered by experienced clinicians. These interviews take longer, though, so they're not practical for larger-scale research. The CIDI was also developed for epidemiological research, though we use it in clinical settings.

Dace Svikis: In research, we use these formal structured assessment instruments to characterize our population. As the authors illustrate with their example of depression studies, we need to know what substance use and other psychiatric diagnoses participants have so that our analyses don't miss any factors that affect outcomes.

Robert Forman: The use of formal structured assessment instruments is absolutely critical for research. Even in research, however, they must be used judiciously, because patients' reactions to them can affect clinical outcomes and possibly confound the interpretation of results (e.g., Clifford, Maisto, and Davis, 2007). To me, the justification for using them in clinical practice hasn't been established.

Blaine: Except for the ASI, the instruments discussed in the article take too much time to administer to be practical for routine clinical use. They also often require extensive training and monitoring for fidelity to ensure that clinicians continue to use the measures in line with the practice guidelines.

Data quality and therapeutic alliance

Svikis: The move toward the clinical use of standardized instruments was spearheaded by concern that some clinicians were not doing a thorough job of collecting patient information. Dr. A. Thomas McLellan has said that this was his original motivation for developing the ASI. He had noted that, for example, some clinicians were asking patients about depression, and others weren't. Standardized instruments make sure that all clinicians obtain a uniform set of basic patient data. At the same time, we need to recognize that there are many really good drug counselors with excellent clinical skills. Those counselors can feel handcuffed by structured instruments.

Forman: You have to be extremely talented to go through a structured interview, even one that is semi-structured, and maintain a therapeutic alliance. Fully structured interviews have a tendency to become robotic, when what clients want is someone who's going to listen and understand them—someone they can open up to.

Svikis: The way fully structured instruments work, if you follow the administration guidelines, when a patient doesn't understand what you're saying, you can only repeat the question verbatim. You can't add information or paraphrase. That makes it hard to establish empathy. It is easier to establish a rapport with semi-structured instruments like the ASI.

Another feature of fully structured instruments that makes them aversive is that you have to repeat all the same questions for each potential drug of abuse. In a clinical setting where the average person uses six or seven substances, that makes for a very long and tedious interview. It's quite different from using the instruments in an epidemiological context with a focus on the general population, where most people use one or two substances regularly or none at all.

Blaine: There is no question that it's easier to establish a relationship with a patient with a less structured instrument than with a more rigid one. Still, the very act of gathering information shows that you are interested in finding out about a person's problems. I think that builds rapport.