Diagnosis

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Diagnosis has played a major part in the history of medicine and psychiatry. *Diagnosis* refers to the definition or classification of disorders, and *diagnostic systems* are proposed definitions for one or more disorders (Robins and Guze 1970; National Institute on Alcohol Abuse and Alcoholism 1995). *Methods* of diagnosis involve the use of scientific procedures to establish the description and etiology of a disorder through evaluation of its history and present manifestation (Jacobson 1989).

This chapter reviews methods that are used in the diagnosis of alcohol problems or, in the language of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV), the alcohol use disorders (American Psychiatric Association 1994).

The chapter has four major aims:

- To present a brief overview of background information and definitions regarding psychiatric diagnosis
- To provide a description and critical review of diagnostic measures that were identified and that met criteria for inclusion in this *Guide*
- To make recommendations about the clinical and research applications of the measures
- To identify needs for research on diagnostic measures

Background and Definitions

Many diagnostic systems of alcohol problems could be created (Clark et al. 1995). However, the major distinction among systems that have been or could be developed is whether they are categorical or dimensional. Both types of systems have been proposed and used in the description of alcohol problems (e.g., National Council on Alcoholism 1972; Rinaldi et al. 1988; Schuckit et al. 1988; Keller and Doria 1991; Nathan and Langenbucher 1999).

Dimensional systems specify features (e.g., symptoms) of a disorder or problem as existing on a continuum, so that more or less of those features can be quantified. Similarly, other relevant characteristics of a disorder, such as severity, are conceptualized as existing on a continuum. Categorical systems, on the other hand, define a disorder on the basis of a cluster of symptoms that ideally are discrete from clusters of symptoms that define other disorders that are included in the diagnostic system (e.g., Blashfield 1989; Nathan and Langenbucher 1999; Widiger and Clark 2000).

In the United States, the categorical DSM system has had the greatest influence on the diagnosis of alcohol use and other psychiatric disorders. Accordingly, the methods of assessment discussed in this chapter are most relevant to the

diagnosis of alcohol use disorders according to the DSM. Because of the nature of the DSM system, measurement for diagnosis of other substance use disorders also is discussed. It is important to note here that DSM-IV was developed to be consistent with the 10th revision of the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10), which, as its name implies, is used around the world; ICD-10 was published in 1992 by the World Health Organization (WHO). Criteria for alcohol use disorders, particularly for alcohol dependence, are similar in the DSM and ICD systems; this will be apparent later in this chapter in a comparison of the two systems' definitions of alcohol use disorders. Development of criteria for both systems was heavily influenced by the drug dependence syndrome construct.

In a 1981 memorandum, WHO presented a full discussion of the drug dependence syndrome construct. It was noted that

> drug dependence is a syndrome manifested by a behavioral pattern in which the use of a given psychoactive drug, or class of drugs, is given a much higher priority than other behaviors that once had higher value. The term syndrome is taken to mean no more than a clustering of phenomena so that not all the components need always be present, or not always present with the same intensity. (pp. 230–231)

Moreover, the dependence syndrome is seen as existing in degrees and is measured by drug use and associated behaviors. Importantly, a distinction is made between dependence and "disabilities" (e.g., social, occupational, and financial problems related to drug use) in the WHO paper, because not everyone who suffers such disabilities would be determined to be drug dependent according to the definition of the drug dependence construct. However, as alcohol dependence increases in severity, it is more likely that the individual will suffer alcohol-related disabilities.

Diagnosis of Alcohol Use Disorders According to DSM-IV

Table 1 presents the DSM-IV criteria for diagnosis of alcohol dependence. For comparison purposes, the alcohol dependence criteria according to the ICD-10 also are presented in table 1. It is important to note that both DSM and ICD refer to "substance" dependence; the criteria in table 1 have been written for alcohol. Table 1 illustrates the comparability of the DSM and ICD systems in their criteria for the diagnosis of alcohol dependence. In addition, the diagnostic criteria reflect the influence of the construct of the dependence syndrome in their emphasis on the cognitive or behavioral correlates of alcohol use or its procurement (the last four symptoms for DSM in table 1) as well as evidence for tolerance to alcohol and the alcohol withdrawal syndrome (the first two symptoms for DSM). Given these similarities, it is not surprising that there is considerable evidence that the two sets of criteria yield comparable rates of diagnosis of alcohol dependence (Hesselbrock et al. 1999).

Either one of the symptoms of tolerance and withdrawal defines "physiological dependence" in DSM, as indicated in table 1; the diagnosis is indicated as being with or without physiological dependence. The development of physiological dependence has been demonstrated for some of the substances included in the DSM-IV substance use disorders group. Because both tolerance and withdrawal have been clearly demonstrated for alcohol (Maisto et al. 1999), these two criteria apply to the diagnosis of alcohol dependence.

DSM-IV is a *polythetic* system, in that an individual does not have to meet all of the equally weighted criteria included in a diagnostic category for a diagnosis to be made. Therefore, as table 1 shows, all seven of the criteria do not have to be met for a diagnosis of alcohol dependence to be assigned; three are sufficient. It has been inferred from this system that as the number of criteria met

Table 1.— DSM-IV and ICD-10 diagnostic criteria for alcohol dependence

	DSM-IV	ICD-10
Symptoms	A maladaptive pattern of alcohol use, leading to clinically significant impairment or distress as manifested by three or more of the following occurring at any time during the same 12-month period:	Three or more of the following have been experienced or exhibited at some time during the previous year:
• Tolerance	• Need for markedly increased amounts of alcohol to achieve intoxication, or reduced effect with continued use of the same amount of alcohol	• Increased doses are needed to achieve effects once produced by lower doses
• Withdrawal	• The characteristic withdrawal syndrome for alcohol, or alcohol or a closely related substance is taken to relieve or avoid withdrawal symptoms	• When drinking has ceased or been reduced: The characteristic alcohol withdrawal syndrome ensues, or alcohol or a closely related substance is used to relieve or avoid withdrawal symptoms
• Impaired control	• Persistent desire or at least one unsuccessful effort to cut down or control drinking • Drinking in larger amounts or over a longer period than the person intended	• Difficulties controlling drinking onset, termination, or levels of use
• Neglect of activities	• Important social, occupational, or recreational activities given up or reduced because of drinking	• Progressive neglect of alternative pleasures or interests in favor of drinking
• Time spent drinking	• A great deal of time spent in activities necessary to obtain alcohol, to drink, or to recover from its effects	• A great deal of time spent in activities necessary to obtain alcohol, to drink, or to recover from its effects
• Drinking despite problems	• Continued drinking despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to be caused by or exacerbated by alcohol use	• Continued drinking despite clear evidence of overtly harmful physical or psychological consequences
• Compulsive use	• None	• A strong desire or sense of compulsion to drink

TABLE 1.— DSM-IV and ICD-10 diagnostic criteria for alcohol dependence *(continued)*

	DSM-IV	ICD-10
Duration criterion	None specified. Three or more dependence criteria must be met within the same year and must occur repeatedly as specified by duration qualifiers associated with criteria, such as "often," "persistent," and "continued"	None. Three or more dependence criteria must be met during the previous year
Dependence subtyping criterion	With physiological dependence: evidence of tolerance or withdrawal Without physiological dependence: no evidence of tolerance or withdrawal	None

Source: Adapted from National Institute on Alcohol Abuse and Alcoholism. Diagnostic Criteria for Alcohol Abuse and Dependence. *Alcohol Alert*, No. 30 (PH 359). [Bethesda, MD]: the Institute, 1995.

for diagnosis increases, the severity of dependence increases. Furthermore, a logical result of the system is that as the number of the same criteria that are met in a group of individuals with the diagnosis increases, heterogeneity decreases in that group regarding alcohol-related characteristics.

There are six "course specifiers" of dependence, which are described in detail in DSM-IV (American Psychiatric Association 1994, pp. 179–180). Four of these specifiers pertain to remission of dependence and are applied to the diagnosis only if no criteria for abuse or dependence have been met for a least 1 month. The remaining two course specifiers apply if individuals are on agonist therapy or if they are residing in a controlled environment (American Psychiatric Association 1994, p. 180). If either of these latter two specifiers applies, then the disorder does not qualify for any of the remission course specifiers.

Table 2 lists the DSM-IV criteria for alcohol abuse and the ICD-10 criteria for "harmful use," which may be viewed as the counterpart diagnosis. Similar to dependence, both systems refer to "substance" use/abuse, and the criteria in table 2 have been written for alcohol. Although both sets of criteria refer broadly to negative consequences of alcohol use, DSM uses the term "alcohol abuse" and ICD-10 uses the term "harmful use of alcohol." The term *harmful use* was created for ICD-10 so that health problems that are related to alcohol use are not underreported (National Institute on Alcohol Abuse and Alcoholism 1995).

The DSM-IV abuse criteria emphasize the consequences of alcohol use, and only one of the four criteria must be met for the diagnosis of abuse to be made. It is interesting to note that, somewhat inconsistent with the theoretical statement of the drug dependence syndrome, dependence is not entirely independent of disabilities (consequences) in DSM-IV (Grant and Towle 1991). In this regard, the symptom for dependence listed in table 1, "drinking despite problems," overlaps to a degree with the fourth criterion for abuse, "continued alcohol use despite having

TABLE 2.—Criteria for alcohol abuse (DSM-IV) and harmful use of alcohol (ICD-10)

DSM Alcohol Abuse

A. A maladaptive pattern of alcohol use leading to clinically significant impairment or distress, as manifested by one or more of the following, occurring within a 12-month period:
   (1) Recurrent drinking resulting in a failure to fulfill major role obligations at work, school, or home
   (2) Recurrent drinking in situations in which it is physically hazardous
   (3) Recurrent alcohol-related legal problems
   (4) Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol

B. The symptoms have never met the criteria for alcohol dependence.

ICD-10 Harmful Use of Alcohol

A. A pattern of alcohol use that is causing damage to health. The damage may be physical or mental. The diagnosis requires that actual damage should have been caused to the mental or physical health of the user.

B. No concurrent diagnosis of alcohol dependence.

Source: Adapted from National Institute on Alcohol Abuse and Alcoholism. Diagnostic Criteria for Alcohol Abuse and Dependence. *Alcohol Alert,* No. 30 (PH 359). [Bethesda, MD]: the Institute, 1995.

persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol."

Two additional points regarding diagnoses of abuse and dependence should be made. First, each diagnosis has a time contingency. Criteria for abuse or dependence must have been met in the last 12 months in order for the diagnosis to be called current. It is also possible to assign lifetime (i.e., before the last 12 months) diagnoses of alcohol abuse or dependence, and several of the structured diagnostic methods described later offer this feature. The second point is that, as seen in table 2, a DSM-IV diagnosis of alcohol abuse cannot be made if criteria for a diagnosis of alcohol dependence have ever been met.

The preceding discussion covering definitions of diagnosis and the drug dependence syndrome, along with a description of the DSM criteria for alcohol use disorders, provides the conceptual rationale for choosing the instruments that are reviewed in this chapter. Instruments designed to help obtain DSM or ICD diagnoses of alcohol (or, more generally, substance) use disorders are included. More focused measures relating to the dependence syndrome and to the criteria for formal diagnoses are also covered. These include measures of consequences of alcohol use, control over alcohol use, urges and craving (to consume alcohol), and withdrawal. All of these measures—the instruments designed to yield formal diagnoses as well as the more focused measures—are referred to in this chapter as diagnostic measures.

Validity of Psychiatric Diagnosis

In the course of research on psychiatric taxonomic systems in the United States, generally accepted criteria for evaluating the validity of diagnostic

categories have evolved. These criteria include clinical description, laboratory studies, delimitation from other disorders, followup studies (i.e., stability and prognostic value of a diagnosis), and family studies, which pertain to etiology of disorders (Woodruff et al. 1977, p. 443; Todd and Reich 1989; Nathan and Langenbucher 1999). Essentially, these criteria specify that valid diagnostic categories are discrete, are based in etiologic research, enhance our ability to predict the course of a disorder, and enable prescriptive treatment assignment.

In the last several years, a considerable amount of research has been generated that has addressed the validity of the DSM-IV definitions of alcohol use disorders in adults. This research has suggested that the distinction between alcohol abuse and dependence is valid (Hasin and Paykin 1999; Nelson et al. 1999) and has shown the importance of withdrawal in diagnosing alcohol dependence specified with physical dependence (Langenbucher et al. 2000). Furthermore, Hasin and Paykin's (1998) study suggested that the requirement of meeting three of the seven criteria for a diagnosis of alcohol dependence is valid. In addition, a study by Reynaud et al. (2000) of the use of laboratory tests to make a diagnosis of alcohol abuse reflects increasing interest in the use of such methods to arrive at diagnoses of the alcohol use disorders.

However, DSM-IV still falls considerably short of the mark of a valid diagnostic system according to the standards described earlier. For example, the diagnostic categories in DSM are not for the most part etiologically based because of the limits of our knowledge about the development of most of the identified psychiatric disorders. In addition, knowledge of diagnosis does not lead to prescriptive treatments for the vast majority of disorders, particularly when considering psychosocial treatments (Beutler and Clarkin 1990). In planning treatment, it generally is necessary to go beyond diagnosis, such as by determining the antecedent and consequent conditions of the symptoms and behaviors that constitute a diagnosis. Certainly this is true in psychological and social treatments for the vast majority of cases of alcohol problems.

Furthermore, diagnostic categories are not discrete. Instead, there is considerable overlap across some diagnostic categories and heterogeneity within categories. For example, in a general population survey study of DSM-III-R (DSM-IV's predecessor) (American Psychiatric Association 1987), Grant and colleagues (1992) found 189 subtypes (466 are possible) of alcohol dependence diagnoses based on combinations of symptoms whose criteria were met in the sample. In addition, the number of subtypes found covaried with subject demographic factors such as gender, age, and race.

With the evidence on the validity of diagnoses, it might be legitimately argued that the assignment of alcohol use disorder diagnoses does little to enhance treatment or research. However, there are several compelling reasons for continuing to assign diagnoses as part of clinical and research practice. First, the assignment of diagnoses that can be reliably derived greatly improves communication among clinicians and researchers. That is, diagnoses aid clinical description. Alcohol problems is one area of clinical practice that has been chronically beset with ambiguity and disagreement concerning definition, and the creation of diagnostic criteria that can, for the most part, be operationalized as in DSM-IV has alleviated such problems of definition considerably. Improvement in communication among professionals about what they are treating and studying also tends to accelerate advances in research, which in turn will help to refine the diagnostic system itself.

Another reason to assign diagnoses is that they can be useful in planning treatments. In this regard, psychiatric diagnostic categories consist of covarying symptoms and behaviors, so that knowing one symptom helps to predict the exis-

tence of others. Although this feature alone does not lead to prescriptive treatments, elaboration of detail about symptoms, such as by learning their antecedent and consequent conditions, is essential to treatment planning.

Taken together, these advantages provide a solid rationale for continuing to assign diagnoses as part of treatment and research on alcohol use disorders. As a result, we argue that diagnostic measures do have clinical and research utility. We explore this point in more detail later in discussions of individual measures.

Diagnostic Measures

There is no shortage of measures that could have been chosen for inclusion in this chapter. The 18 measures that were selected for review met the criteria for inclusion outlined in the introduction to this *Guide*. The full name of each measure and its abbreviation are listed here:

- Alcohol Craving Questionnaire (ACQ-NOW)
- Alcohol Dependence Scale (ADS)
- Clinical Institute Withdrawal Assessment (CIWA-AD)
- Composite International Diagnostic Interview (CIDI core) Version 2.1
- Diagnostic Interview Schedule for DSM-IV (DIS-IV) Alcohol Module
- Drinker Inventory of Consequences (DrInC)
- Drinking Problems Index (DPI)
- Ethanol Dependence Syndrome (EDS) Scale
- Impaired Control Scale (ICS)
- Personal Experience Inventory for Adults (PEI-A)
- Psychiatric Research Interview for Substance and Mental Disorders (PRISM) (formerly known as the Structured Clinical Interview for DSM-III-R, Alcohol/Drug Version [SCID-A/D])
- Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA-II)
- Severity of Alcohol Dependence Questionnaire (SADQ)
- Short Alcohol Dependence Data (SADD)
- Substance Abuse Module (SAM) Version 4.1
- Substance Dependence Severity Scale (SDSS)
- Substance Use Disorders Diagnostic Schedule (SUDDS-IV)
- Temptation and Restraint Inventory (TRI)

Tables 3A and 3B summarize the major features of these measures. The purpose of each measure is listed because several different types of measures (e.g., measures of nomenclature, severity of dependence, and consequences) are called diagnostic in this chapter. Clinical utility is listed because a major aim of this chapter is to address clinicians' assessment needs, and the diagnostic measures vary in the degree to which they assist clinicians in treatment planning, implementation, and evaluation. Training requirement is included because of the substantial variability among the diagnostic measures on that dimension; how accessible a measure is to a clinician or researcher with specific resources could depend in part on the extent of training that is required to use it.

A number of table entries are "NA" (not applicable) in the columns relating to whether a measure has been normed. For measures designed to give diagnoses according to a nomenclature system such as DSM, this dimension is not relevant, because such measures are criterion linked. That is, respondents either will or will not meet preset criteria for some designation, in this case a psychiatric diagnosis. A legitimate question is whether subgroups vary in the frequency with which they meet the criteria for a diagnosis, but the criteria themselves typically would not be adjusted for use with different groups of individuals

TABLE 3A.—Diagnostic instruments: Descriptive information

Instrument	Purpose	Clinical utility	Target population	Groups used with	Norms avail.?	Normed groups
ACQ-NOW	To measure acute alcohol craving	Measure of change pre- to posttreatment	Adults	All current drinkers	No	No
ADS	To measure severity of alcohol dependence, based on alcohol dependence syndrome	Screening and case finding; level of treatment and treatment goal planning	Adults	Wide variety of settings	Yes	Various treatment samples
CIWA-AD	Converts DSM-III-R items into scores to track withdrawal severity	Aid in adjustment of care related to withdrawal severity	Adults	Adults in alcohol withdrawal	NA	NA
CIDI core Version 2.1	To assess DSM-IV and ICD-10 diagnoses	Aid in treatment planning	Adults	General population, general medical patients, psychiatric patients	NA	NA
DIS-IV Alcohol Module	To provide a structured measure of DSM-IV criteria for alcohol abuse and dependence	Designed for epidemiology research; clinical use possible, especially clinical research	Adults	Age 18 and older, wide sociodemographic range	NA	NA
DrInC	To measure consequences of alcohol use	Relates to abuse diagnosis; help in giving patients feedback about their alcohol use	Adults	Inpatient and outpatient clinical samples; homeless and college populations	Yes	Inpatients and outpatients in alcohol treatment; males and females
DPI	To assess drinking problems in older adults	Relates to abuse diagnosis; help in giving patients feedback about their alcohol use	Adults 55 and older	Adults 55 and older	No	NA

TABLE 3A.—Diagnostic instruments: Descriptive information *(continued)*

Instrument	Purpose	Clinical utility	Target population	Groups used with	Norms avail.?	Normed groups
EDS	To measure elements of alcohol dependence syndrome	Monitor dependence severity over time	Adults	Individuals with alcohol use disorders; college students; general population of drinkers	No	No
ICS	To measure actual and perceived control over drinking	Aid in diagnosis and specification of treatment goals	Adults	Individuals with any degree of alcohol dependence	Yes	Clinical sample of problem drinkers and non-problem samples
PEI-A	To measure substance use and resulting problems	Aid in case identification and treatment referral	Adults	Adults suspected of alcohol or other drug-related problems	Yes	Treatment-seeking samples and general community
PRISM	To provide a semi-structured measure of DSM-III, DSM-III-R, and DSM-IV diagnoses and related factors	Mainly research, but clinical use possible	Adults	Community samples; alcohol and other drug clinical samples	NA	NA
SSAGA-II	To derive substance use and other diagnoses according to DSM-III-R, DSM-IV, and ICD-10; other data may also be collected	Designed for research; aid in treatment planning	Adults	General population of adults	No	No
SADQ	To measure severity of alcohol dependence, based on alcohol dependence syndrome	Aid in treatment goal specification and in assessment of withdrawal severity	Adults	Problem drinkers in treatment of various kinds	Yes	Inpatient, outpatient, and community-based treatment agency attenders in several countries

TABLE 3A.—Diagnostic instruments: Descriptive information *(continued)*

Instrument	Purpose	Clinical utility	Target population	Groups used with	Norms avail.?	Normed groups
SADD	To provide a measure of dependence on alcohol free of cultural bias	Aid in treatment goal specification	Adults	Clinical samples with mild to moderate dependence; nonclinical samples in some cases	Yes	Young male offenders
SAM Version 4.1	More detailed version of the CIDI substance use section	Aid in treatment planning	Adults, adolescents >16 years	General and clinical populations, excluding those with severe retardation or severe organic brain syndrome	No	NA
SDSS	To provide a dimensional measure of DSM-IV and ICD-10 dependence and abuse criteria	Aid in treatment planning and evaluation	Adults, adolescents >16 years	Clinical populations	No	No
SUDDS-IV	To provide structured measures of DSM-III and DSM-III-R substance use disorders	Aid in treatment planning	Adults	Chemical abuse and dependence populations; dual-diagnosis populations	NA	NA
TRI	To measure preoccupation with control over drinking	Aid in treatment planning	Adults	Individuals concerned about their drinking	Yes	No

Note: The instruments are listed in alphabetical order by full name; see the text for the full names of the instruments. DSM-III = *Diagnostic and Statistical Manual of Mental Disorders*, *Third Edition*; DSM-III-R = *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised*; DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders*, *Fourth Edition*; ICD-10 = *International Statistical Classification of Diseases and Related Health Problems*, 10th rev.; NA = not applicable; P&P = pencil and paper; SA = self-administered.

TABLE 3B.—Diagnostic instrument: Administrative information

Instrument	Format options	Time to administer	Training needed?	Computer scoring avail.?	Fee for use?
ACQ-NOW	P&P SA	5–10 min	No	No	No
ADS	P&P SA; interview; computer SA	5 min	"Basic"	Yes	No
CIWA-AD	Observation	2 min	Yes	No	No info
CIDI core Version 2.1	Interview; computer SA	70 min	Yes	Yes	Yes
DIS-IV Alcohol Module	Interview	10–20 min	Yes	Yes	Yes
DrInC	P&P SA	10 min	No	No	No
DPI	P&P SA	3–5 min	No	No	No
EDS	P&P SA	5–10 min	No	No	No
ICS	P&P SA	5–10 min	Yes	No	No
PEI-A	P&P SA	45 min	No	No	No
PRISM	Interview	1–5 h	Yes	Yes	No
SSAGA-II	Structured interview	45 min–4 h	Yes	Yes	No
SADQ	P&P SA	5 min	No	No	No
SADD	P&P SA; interview	2–5 min	No	No	No
SAM Version 4.1	Interview	10–20 min	Yes	Yes	No
SDSS	Interview	15–40 min	Yes	Yes	No
SUDDS-IV	Interview; computer SA	30–45 min	Yes	Yes	Yes
TRI	P&P SA	10 min	No	No	No

Note: The instruments are listed in alphabetical order by full name; see the text for the full names of the instruments. P&P = pencil and paper; SA = self-administered.

unless some change in the nomenclature itself occurred. Similarly, normative data are irrelevant for the CIWA scales, because they are designed to measure specified symptoms of alcohol withdrawal. Again, the criteria for defining a person as in or not in withdrawal would not be expected to vary according to subgroup.

Constructs Measured

We have arbitrarily classified the selected diagnostic instruments according to six of the constructs they were designed to measure: nomenclature, severity of dependence, severity of withdrawal, preoccupation with control over alcohol, craving, and consequences and problems. These constructs are not independent in the sense that they all relate to the formal diagnosis of substance use disorders. Although it is conceivable that several measures could be placed in more than one category, each is classified in what seems to be the best fitting group.

Nomenclature

The CIDI core, the DIS-IV Alcohol Module, the PRISM (formerly SCID-A/D), the SAM, the SSAGA-II, and the SUDDS-IV were designed to provide diagnoses of substance use disorders according to the DSM or ICD systems. Most of the measures, however, are geared to DSM, given that they were developed in the United States.

The formats of these measures may be defined as structured or semi-structured. The primary difference between the two formats is the degree of interviewer judgment that is required to determine if a respondent meets a diagnostic criterion. The most extreme example of a structured measure is the DIS-IV, designed primarily for administration by lay interviewers for purposes of epidemiologic research. Although structured interviews tend to have high reliability, many clinicians have found that these instruments produce an interview process in which respondents mechanically give a series of "yes" or "no" answers (Spitzer 1983). The SCID was developed to address this concern; interviewers retain discretion to probe for information from the respondent, but their questioning is guided by the need to collect information relevant to specific diagnostic criteria.

A few of the nomenclature measures cover other (than substance use) Axis I or Axis II (in DSM terms) disorders. Examples are the CIDI, the SSAGA-II, the PRISM, and the Schedule for Clinical Assessment in Neuropsychiatry (SCAN; fact sheet not included) (Wing et al. 1990). The reason for including measures of diagnoses other than the substance use disorders is the importance of dual diagnoses in both clinical and research contexts. Considerable attention has been given to the problem of individuals who present with a substance use disorder and one or more other Axis I or II disorders (e.g., Frances and Miller 1991; Nathan and Langenbucher 1999).

Severity of Dependence

The measures included in this category are the ADS, the EDS, the SADD, the SADQ, and the SDSS. They were designed to reflect the alcohol dependence syndrome construct (Edwards and Gross 1976), which is the more specific case of the drug dependence syndrome defined earlier.

Severity of Alcohol Withdrawal

The CIWA-AD focuses on standard symptoms of the alcohol withdrawal syndrome, the presence of which is evidence for physical dependence on alcohol. Such information is directly relevant to the diagnosis of alcohol dependence according to DSM-IV, as a distinction is made according to the presence or absence of "physiological dependence."

Preoccupation With Control Over Alcohol

Measures in this category (the ICS and the TRI) generally concern discrepancies between intended and actual use of alcohol and the psychological and behavioral correlates of individuals' efforts to modulate their alcohol use. As such, these measures reflect the part of the alcohol dependence syndrome that pertains to the individual's control over alcohol consumption and its associated features.

Craving

Craving often is conceptualized as a subjective motivational state that represents a motivational process that contributes to alcohol dependence. Craving has been conceptualized as a unidimensional or multidimensional emotional state (Love et al. 1998; Tiffany et al. 2000), and craving measures that have been used in clinical and most research contexts use self-report methods. The measure of craving covered in this chapter is the ACQ-NOW.

Consequences and Problems

Measures in this category include the DrInC, the DPI, and the PEI-A. They focus on biopsychosocial events or experiences and their perceived connections to the individual's alcohol consumption. Measures of consequences of alcohol use are directly relevant to the abuse diagnosis.

Special Populations

The diagnostic measures discussed here were not developed specifically for different subgroups of individuals, with a few exceptions. One important subgroup marker is age, because it can influence both the format and content of items that constitute a measure. The measures described in this chapter were developed for individuals at least 18 years of age, although the SAM and the SDSS may be used with 17-year-olds. One measure, the DPI, was developed specifically for use with adults age 55 and older. The chapter by Winters includes diagnostic measures for adolescents.

Although a measure may not be developed specifically for use with a particular group, possible differences in responding among subgroups are described in table 3A when subgroup norms are available. Such information helps researchers to interpret any given individual's score or performance on a measure. It is important to emphasize in discussing subgroup data that such information does not address the possible bias or lack of sensitivity that may exist in a measure for one or more subgroups. For example, it is plausible that types of alcohol-related consequences vary with age, so that failure to take such age-related differences into account would render a measure less sensitive for certain subgroups, such as young adolescents or the elderly. Such reasoning was the basis of developing the DPI, which was designed to be more sensitive than typical consequences measures to the experiences of those age 55 and older.

Psychometric Properties of the Measures

Table 4 presents information on the reliability and validity data that are available for the diagnostic measures. The three kinds of reliability reported are test-retest, split-half, and internal consistency; the three kinds of validity are content, criterion, and construct. (Table 4 also shows that interrater reliability data are available for the SSAGA-II.) Consistent with the criteria that were followed in choosing the measures for this *Guide*, at least some information is available on the psychometric properties of all the instruments selected; see the appendix for more detail.

The diagnostic measures differ in the extent of psychometric data that are available. For example, only one type of reliability has been reported for the DIS-IV Alcohol Module (test-retest). In contrast, the ADS has far more extensive psychometric data

TABLE 4.—Availability of psychometric data on diagnostic instruments

	Reliability			Validity		
Instrument	Test-Retest	Split-half	Internal consistency	Content	Criterion	Construct
ACQ-NOW			•	•	•	•
ADS	•		•	•	•	•
CIWA-AD	•	•		•	•	•
CIDI core Version 2.1	•				•	
DIS-IV Alcohol Module[1]	•					
DrInC	•		•		•	•
DPI			•		•	•
EDS	•		•		•	•
ICS	•		•	•	•	
PEI-A	•		•	•	•	•
PRISM	•		•			•
SSAGA-II		Interrater		•		
SADQ	•			•	•	•
SADD	•	•		•		•
SAM Version 4.1						
SDSS	•		•		•	•
SUDDS-IV		•		•	•	•
TRI			•		•	•

Note: The instruments are listed in the same order as in table 3; see the text for the full names of the instruments.
[1] The fact sheet for the DIS-IV Alcohol Module indicates that validity studies of the instrument have been completed, but the type of evidence for validity was not specified.

available. Typically, if other considerations are held constant, the measure with stronger (extent and magnitude) psychometric evidence is preferred.

Research and Clinical Utility

Diagnostic measures can provide several kinds of information important to the clinician. The measures of nomenclature may contribute to the planning of the setting (inpatient or outpatient, for example), intensity, and substance use outcome goals of treatment. In this regard, a diagnosis of alcohol abuse versus dependence may have implications for each of these aspects of treatment planning (Maisto and Connors 1990) in that abuse typically can be treated with less intense, outpatient modalities. Furthermore, moderate drinking typically would not be considered to be an advisable outcome goal for individuals diagnosed as alcohol dependent but might be relevant for some individuals with an abuse diagnosis.

In addition, the identification of psychiatric disorders that are concurrent with an alcohol use disorder can influence treatment planning in significant ways. For example, the presence of an Axis I disorder might indicate a need for psychotropic medication in conjunction with psychosocial rehabilitation for alcohol-related

problems. Although measures of nomenclature can provide information that is extremely useful in treatment planning, diagnoses of substance use disorders are not prescriptive for rehabilitation efforts. That is, knowledge of a diagnosis of substance use disorder does not in itself provide an adequate basis for developing a full treatment plan.

The measures concerning the severity of dependence (the ADS, the EDS, the SADQ, and the SADD) also are relevant to planning drinking outcome goals. Individuals with a greater degree of dependence severity tend to be poorer candidates for moderate drinking outcomes (Rosenberg 1993). Similarly, measures of control over alcohol and craving are useful in planning drinking outcome goals, as less control over alcohol would be more indicative of an abstinence goal. Severity of dependence is also relevant to level and intensity of treatment of the substance use disorders. The CIWA-AD, which specifically reflects physiological dependence on alcohol, relates directly to managing treatment of the alcohol withdrawal syndrome. For instance, studies have cited the utility of the CIWA-AD in determining the dosage of medication required for treating patients in alcohol withdrawal (Wartenberg et al. 1990; Sullivan et al. 1991).

Measures of consequences (the DrInC, the DPI, the PEI-A), besides their relevance to the abuse diagnosis, can be used clinically as a vehicle for giving patients feedback regarding their alcohol use. The detailed information about alcohol-related consequences that these measures provide can be used to show patients the connections between their alcohol consumption and the biopsychosocial consequences they experience. In particular, such information has proved extremely valuable for motivational interventions, which are designed to help the patient move forward in the process of changing patterns of alcohol use (Miller and Rollnick 1991). Information about consequences is a major part of a functional analysis of alcohol use, which is often used in behavioral approaches to the treatment of the alcohol use disorders (Miller and Hester 1989; Hester and Miller 1995).

The developers of the ADS noted that it is useful for screening and case identification. This is a possibility, given its content and brevity. However, to date the ADS has been used primarily for measuring the severity of dependence in individuals who already have been identified as having alcohol problems. Moreover, a number of self-report measures have been developed explicitly for purposes of screening and case identification; the performance (sensitivity and specificity) of many of them is excellent (see the chapter by Connors and Volk in this *Guide*).

Many of the diagnostic measures may be administered to the same individuals on multiple occasions over the course of and following the completion of treatment. The major consideration is that the time reference for which a measure pertains (e.g., last 30 days, last 6 months, last year) is taken into account. Repeated measurement is vital to monitoring the progress and maintenance of change in an individual. It also is a premise of this *Guide* that collection of such evaluation data is essential to improving the effectiveness of alcohol treatment.

All of the instruments listed in tables 3A and 3B that do not measure nomenclature are suitable for research, and as the fact sheets in the appendix show, most of the measures have been used in a variety of research contexts. Three of the nomenclature measures (the DIS-IV Alcohol Module, the PRISM, and the SSAGA-II) were designed for use in research and are suited to that context because of their high degree of structure. Although these measures could be used in clinical settings, and indeed have been used in clinical trials of alcohol treatment that occurred in typical clinical settings, clinicians tend to prefer less structure in a diagnostic instrument. However, such structure is valuable in the research context because it is conducive to a high degree of relia-

bility in making diagnoses, and it reduces costs substantially in interviewer training and data collection time.

Recommendations for Selecting a Diagnostic Measure

A number of instruments are available to measure nomenclature-based diagnoses and related constructs. The instruments discussed here have psychometric data available in differing types and amounts. (Evaluation of the quality of those data requires consultation of the sources cited.) In addition, the instruments have a history of application in different clinical and research contexts. However, there are differences among the instruments relevant to a given construct that would affect the decision to use an instrument at a given time. The information that generally would be needed to select an instrument is contained in tables 3A, 3B, and 4.

Before selecting a diagnostic measure, the clinician or researcher must answer two fundamental questions: What (construct) needs to be measured, and what is the purpose (clinical or research) of measurement? Answers to those questions should immediately narrow the field of diagnostic measures considerably. Psychometric evidence for a measure is the next important consideration, as stronger psychometric data make one measure preferable to another that is comparable on all other dimensions. Another point to consider is whether information is available on the psychometric properties of a measure for the specific population to be assessed.

These more conceptual and technical questions should be followed by two more pragmatic ones. The first is, What resources are available for obtaining and administering a measure? This includes the availability of time to administer a measure, funds to pay for a measure if it is not in the public domain, and funds to hire and train a staff with the credentials needed to administer a measure.

The second pragmatic question concerns the resources available to score a measure. Some of the diagnostic measures are relatively brief and can easily be scored by clinical or clerical staff. Other measures are scored most efficiently by computer software, in which case the data usually can be sent to an outside company to be scored, or software can be purchased to do the scoring on an in-house computer. With regard to computerized scoring, the resource question is whether funds are available either to pay for scoring or to purchase scoring software.

Suggestions for Research

Table 3A highlights the need for more data on the use of measures with specific subgroups of interest. At present, a number of the diagnosis measures have been used only with restricted populations, so interpretation of the findings with particular subgroups might be difficult. Such research would also contribute to another important research need, which is design of measures specifically geared to certain subpopulations. Measures so developed would be more sensitive to the population-specific clinical or research needs than would measures based on the general (typically most prevalent) population(s).

Moreover, development of population-specific measures could lead to modification of the construct in question. For example, a major question is whether the DSM criteria for substance use disorder are relevant to adolescents, because the criteria are derived from research with adults. Research on applicability to adolescents might lead to adjustment of the criteria for that age group (and thus to a change in the construct) or to confirmation that the current criteria are as relevant to adolescents as they are to adults (Martin et al. 1995). Discussion of the applicability of available

measures for use with adolescents is presented in the chapter by Winters. Similar questions can be raised about measures of any of the constructs relevant to diagnosis and for any defined subpopulation.

The construct of craving has been important clinically in the treatment of alcohol use disorders for many years, but empirically supported measures of craving for alcohol have appeared only recently. In fact, the first edition of this *Guide*, which was published in 1995, did not include any measures of craving, because there were none that met the psychometric criteria for inclusion in that book. However, in the last several years, measures of craving have been developed that have research and clinical utility and that are empirically supported.

There are important research questions about the measurement of craving that need to be addressed. One of these was mentioned earlier: whether craving is conceptualized best as a unidimensional or a multidimensional construct, and which concept is best suited to different research or clinical problems. A second important question is the influence of context on self-reports of craving, given the evidence that cues or situations that remind individuals with alcohol use disorders of previous alcohol use can readily trigger craving. Finally, current measures do not distinguish between gradual and abrupt changes in craving, which are of considerable importance.

Another major research need is for additional data on psychometric properties. Table 4 shows a range of types of psychometric information available for the various diagnostic measures; additional psychometric research ultimately would provide the field with more sensitive and valid measures of diagnosis. The fact sheets for the diagnostic measures that appear in the appendix show differences in the amount of research done on them beyond the original development studies. As research and clinical applications of the diagnosis measures increase, an empirical base will emerge for continued refinement and understanding of the data that the measures provide.

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