Review of diagnostic screening instruments for alcohol and other drug use and other psychiatric disorders

by

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PART I
General issues

Introduction

Background and context of the review

In recent years there has been a growing recognition that many people with drug or alcohol problems are also experiencing a range of other psychiatric and psychological problems. The presence of concurrent psychiatric or psychological problems is likely to have an impact on the success of treatment services. These problems vary greatly from undetected major psychiatric illnesses that meet internationally accepted diagnostic criteria such as those outlined in the Diagnostic and Statistical Manual (DSM-IV) of the American Psychiatric Association (1994), to less defined feelings of low mood and anxiety that do not meet diagnostic criteria but nevertheless impact on an individual's sense of well-being and affect his/her quality of life.

Similarly, the presence of a substance misuse problem amongst those suffering from a major psychiatric illness often goes undetected. For example, the use of illicit drugs such as cannabis and amphetamine is higher amongst those individuals suffering from schizophrenia (Hall, 1992) and the misuse of alcohol in people suffering from schizophrenia is well documented (e.g. Gorelick et al., 1990; Searles et al., 1990; Soyka et al., 1993). High rates of alcohol misuse have also been reported in a number of groups including women presenting for treatment with a primary eating disorder (Staiger and Dawe, submitted for publication), individuals suffering from post traumatic stress disorder (Seidel,

Gusman and Aubueg, 1994), and from anxiety and depression.

Despite considerable evidence of high levels of comorbidity, drug and alcohol treatment agencies and mainstream psychiatric services often fail to identify and respond to concurrent psychiatric or drug and alcohol problems, respectively. This review was undertaken as a first step in providing clinicians with information on screening and diagnostic instruments that may be used to assess previously unidentified co-morbidity.

The objectives were to:

- identify which screening/diagnostic instruments are relevant to detect alcohol and other drug problems and psychiatric disorders,

- review AOD and psychiatric screening/diagnostic instruments,

- recommend when these instruments should be used, by whom and how they should be interpreted,

- identify limitations and provide recommendations for further research.

Aims and limitations of the review

It is hoped that the review of screening and diagnostic instruments and procedures contained herein serves as a practical resource for clinicians working within mental health settings, hospitals, and general practice. It is not intended to be a comprehensive review of all screening and diagnostic instruments nor does it provide an exhaustive review of the research findings pertaining to particular instruments. Due to the nature and scope of this project the authors have been highly selective and those instruments reviewed are widely used, had been demonstrated to be reliable and valid measures of the construct in question and were brief and easy to administer.

Issues specific to the development of screening and diagnostic instruments

One of the central issues discussed in relation to the instruments presented in this review is the reliability and validity of the instrument (i.e. the psychometric properties of the instrument). Broadly speaking the concept of reliability refers to the ability of the instrument to measure a construct consistently, while the term validity is used to describe how accurately an instrument measures what it purports to measure (see Anastasi, 1993, for further discussion). Reliability is generally more easily established than validity and therefore the psychometric properties of an instrument are usually described with reference to reliability first and then validity.

Reliability

The reliability of an instrument is determined by the stability of the measurement across time, that is, test-retest reliability; and by internal consistency, or the extent to which items on an instrument measure the same construct. Test-retest reliability is determined by administering the same instrument on two well-specified occasions and assessing how similar the scores are. This is done using correlations. Correlation coefficients vary between 1.0 and -1.0. A correlation of 1 indicates that the two scores are positively correlated: as one score increases so does the other score. A correlation coefficient of -1 indicates that the two scores are negatively correlated, as one score increases the other score decreases; a correlation coefficient of 0 indicates that there is no systematic relationship between the two scores.

The internal consistency of an instrument may be determined in a number of ways (see Kaplan and Saccuzzo, 1993, for a discussion). One frequently used method is referred to as split-half reliability. An instrument is administered and divided into halves that are scored separately. The results of one half of the test can then be correlated with the results of the other. An alternative method used for determining the internal consistency of an instrument is the use of a statistic known as Cronbach's alpha which is based on the average correlation of the items within a test. An *alpha* coefficient of .8 or above is generally taken to indicate that the instrument has good internal reliability. If an instrument appears to be measuring more than one construct or domain, a factor analysis may be performed. In this procedure it is possible to determine whether the test items fall into distinct groups and may represent separate factors.

Validity

The validity of an instrument is usually ascertained by reference to independent, external criteria and may be divided into content validity,

construct validity and criterion validity. An instrument is considered to have content validity if it measures all aspects of the particular condition; for example an instrument designed to assess the severity of alcohol withdrawal symptoms would need to include items addressing the broad range of changes which are known to occur on cessation of the use of alcohol. Construct validity refers to the extent to which an instrument measures a particular construct (see Anastasi 1990 for a review).

The criterion validity of an instrument refers to the extent to which it corresponds to another accurate measure of the construct. In the context of screening and diagnostic instruments, concurrent validity is one aspect of criterion validity that is particularly important. Studies on concurrent validity look at the relationship between an instrument and the criterion, e.g. a diagnosis. For example, if researchers developed a brief instrument to measure the severity of alcohol dependence they may compare the scores on the new instrument with other standardised measures of alcohol dependence or against a major diagnostic system such as the DSM-IV.

In addition to knowing whether an instrument compares favourably with a previously validated instrument, it is important for clinicians to be able to interpret the scores with confidence. Using a statistical procedure (receiver operating characteristics; ROC's) it is possible to determine the score obtained that produces maximum **sensitivity** (i.e. the instrument correctly identifies subjects with a current diagnosis) and **specificity** (i.e. it correctly identifies those who do not meet diagnostic criteria). A ROC curve is obtained by plotting sensitivity against false positive rate for all possible cut-off points of the instrument. A more detailed review of the use of ROC curves is provided by Rey, Morris-Yates and Staanislaw (1992), Hanley and McNeil (1982) and Murphy, Berwick, Weinstein, et al. (1987). Whenever possible, information on cut-off scores are included to guide clinicians in their interpretation of instrument scores.

Methodology

The review began with identification of screening and diagnostic instruments that have been used in psychiatric and alcohol and other drug populations. A literature search covering the years 1990–1996 was undertaken using Index Medicus and Psychological Abstracts databases. There was also a search of the abstracts of recent relevant conference proceedings, and other sources such as the bibliographies of recently published books. Articles that provided information on instrument's reliability, validity, sensitivity and specificity in detecting disorders, administration time or other relevant features formed the basis of the review.

As well as the review of self-report questionnaires, both copyright instruments and those in public domain, we also look at structured interviews, such as the Diagnostic Interview Schedule (DIS), the Composite International Diagnostic Interview (CIDI; both pen and paper and computerised versions), the structured clinical interview for the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-III; DSM-IV) and the International Classification of Diseases, 9th and 10th edition (ICD-9; ICD-10) criteria. In terms of drug and alcohol problems, we evaluate self-report screening instruments, structured interviews and diagnostic instruments as well as the reliability of self-reporting of quantity and frequency of consumption.

PART II

The concept of diagnosis

The role of diagnosis

The purpose of diagnosis is to provide clear descriptive categories in order to enable clinicians to identify and communicate about various clinical problems. The importance of clinicians being able to communicate easily about the nature of an individual's problems and about suitable treatment and prognosis is generally recognised in health care. Thus, one of the main functions of a diagnosis is to provide an indication about the suitable management of the patient and to be able to communicate that in a succinct way.

A diagnosis does not provide information about the *unique* features of an individual's problems. However, this does not argue against the use of diagnosis, only against its improper use. It is essential to provide additional information about factors which affect an individual's presentation and which may exacerbate or affect the problems which he/she has. Diagnosis becomes part of good clinical management rather than a mechanistic and simplistic tool for clinical management.

The diagnostic systems which are used currently are the Diagnostic and Statistical Manual of Mental Disorders—4th Edition, known as the DSM-IV (American Psychiatric Association, 1994) and the International Classification of Disease which sets out the classification of mental and behaviour disorders (ICD-10; World Health Organisation, 1992). Over recent past, the two taxonomies, the DSM-IV and the ICD-10, have come closer together in terms of their criteria and there is greater agreement about the disorders and the criteria defining them. The ICD is used throughout the hospital system in Australia and the DSM is also used extensively in mental health.

In reaching a decision that a diagnosis is present or absent, an important distinction is drawn between the presence of symptoms and the making of a diagnosis. Symptoms, in and of themselves, do not equate to a diagnosis unless there are sufficient numbers of symptoms of sufficient severity occurring together within a time frame to suggest that the person has met the criteria for the disorder. An important and simple example of this distinction is in the case of depression: many individuals may complain of unhappiness, sadness or general dysphoria but do not have sufficient symptoms or impairment in their life to suggest that the dysphoria has reached a level that is clinically important or significant, or that requires treatment. Others show marked sadness, and associated symptoms, often with disability, to warrant a diagnosis. This distinction between symptoms and diagnoses is why it is important to make formal diagnosis using systematic criteria. However, in many contexts the skills and knowledge required to make a diagnosis may not be present and because of this there is a need to have methods of screening to detect the *likelihood* that a diagnosis might be present so that further investigation may occur. Of course, such screening is common to many areas of medicine and well accepted by the general public and health care professionals. For example, foetus are screened in the early stages of pregnancy for neural tube defect and Down's Syndrome using alpha-foetoprotein levels in the maternal blood. Whilst not a foolproof method, the levels of alpha-foetoprotein are used to detect the likelihood of the presence or absence of a problem and to imply the presence or absence of a diagnosis of neural tube defect or Down's Syndrome. In a similar way screening instruments can be used in the context of drug or alcohol problems to indicate the likelihood of a diagnosis or presence of either alcohol abuse or alcohol dependence (mild, moderate or severe). Other screening instruments are useful and frequently employed in the detection of psychological disorders such as depressive disorders, anxiety disorders and other prevalent problems.

The following two sections of this report provide information about screening and diagnosis of substance misuse disorders and screening and assessment of psychiatric or psychological problems. The role of screening instruments is to allow for a simple, often self-report, approach to gathering information about the presence or

absence of certain behaviours or emotional states and thereafter allowing consideration of the likelihood that these might need further investigation.

The Composite International Diagnostic Interview (CIDI)

Key reference

Wittchen, H.U. (1994). Reliability and validity studies of the WHO-Composite International Diagnostic Interview (CIDI): A critical review. *Journal of Psychiatric Research,* **28,** 57–84.

Summary

The Composite International Diagnostic Interview is a comprehensive and fully standardised interview schedule designed for the assessment of psychological disorders to provide ICD and DSM diagnoses. It may be administered by a trained interviewer or administered via computer. Specific diagnoses are generated, with time of onset and duration of each disorder diagnosed.

Description and development of the CIDI

The Composite International Diagnostic Interview (Wittchen, 1994) was developed as part of a process undertaken by the World Health Organisation and the U.S. Alcohol, Drug Abuse and Mental Health Administration commencing in the early 1980s. Through the process, a number of instruments were also developed including the Diagnostic Interview Schedule (DIS) and the Schedules for Clinical Assessment for Neuropsychiatry (SCAN). These instruments were specifically designed to allow trained interviewers to conduct standardised interviews to detect the presence or absence of psychological disorders under existing psychological taxonomies (ICD and DSM). The DIS was used extensively in population epidemiological research. The CIDI was also designed for population surveys and can be used by trained interviewers who have been familiarised with the structure of the interview. The CIDI covers eating disorders, organic mental disorders, substance use disorders, schizophrenic disorders, paranoid

disorders, affective disorders, anxiety disorders, post-traumatic stress disorders, somatisation disorders, dissociative disorders, and psycho-sexual disorders. Field trials are continuing and other disorders will be added as data on the reliability and validity are gathered.

Reliability and validity of the CIDI

The CIDI has been examined in a large number of studies that are reviewed by Wittchen (1994) and shown to have acceptable levels of test-retest and inter-rater reliability for depressive disorders, anxiety disorders, organic brain syndrome, schizophrenic disorders and eating disorders. Validity studies have also been conducted to assess the CIDI generated diagnosis against other methods of reaching a diagnosis. Wittchen's (1994) summary of the information suggests that the overall diagnostic concordance between the CIDI and clinical check lists are more than adequate for depressive disorders, anxiety and phobic disorders and substance abuse disorders. There is also good concordance between ICD-10 diagnoses and CIDI diagnoses. There is room for further validation studies although it is unclear whether these will be mounted in the future. However, it does appear that the CIDI does provide information which is likely to approximate a clinically generated diagnosis.

Suitability for special populations

The CIDI has been used extensively in a number of countries and found to perform more than adequately across those different cultures and settings. The countries examined include Australia, The Netherlands, Greece, India, China, United Kingdom, Sweden, Eastern Germany, Luxembourg, West Germany, Italy, United States, Portugal, Norway, France, Porta Rica and Brazil. However, its suitability for Aboriginal and Torres Strait Islander people is less clear. Although there have been no specific field trials with this group, discussions with clinicians who have administered the computerised version of the CIDI indicate that there are considerable problems with length, detail and relevance. Further, it was viewed with some suspicion and hostility by Aboriginal people. At present, clinicians recommend that those sections covering personality disorders and low prevalence disorders be omitted (Ernest Hunter, personal communication), a strategy which may also be helpful with other population groups.

With populations that have marginal literacy levels in English, the interviewer-administered form of the instrument should be used. Having patients self-administer the computerised version may prove too difficult for some sub-groups that may be seen in drug and alcohol or psychiatric settings, especially those from non-English speaking backgrounds or with limited educational attainment.

Administration and scoring

The CIDI comes in two forms. A paper form which is completed by an interviewer or a computerised form which can be either administered by an interviewer or completed by an informant. As mentioned earlier, the CIDI generates specific diagnoses with time of onset and the most recent occurrence. Using the computerised form there is no scoring required by the interviewer. Using the pen and paper form a scoring protocol has to be undertaken. Therefore, the use of the computerised form is recommended. Because of the extensive training required for the paper and pen form, its relatively lengthy administration time (an average of 75 minutes), and the clerical time required for data entry and scoring, it has been stated that its use in routine clinical practice may not be optimal (Peters, Morris-Yates and Andrews, 1994).

The computerised version of the CIDI, entitled CIDI-AUTO, was developed at the St. Vincents Hospital at Sydney by Professor Gavin Andrews and colleagues. It can be run on desktop IBM compatible computers and takes between 20 minutes to an hour and a half to complete depending on the specific diagnoses selected. The interviewer selects specific diagnoses which may be of interest, be they anxiety disorders, depressive disorders, substance use disorders, or psychotic disorders.

The CIDI may be used by any suitably qualified mental health worker who has been oriented to its use; however, they should be supervised in the administration and scoring by a fully trained mental health professional who has undertaken recognised training in the CIDI. In NSW this training may be obtained from the Clinical Research Unit for Anxiety Disorders, St. Vincents Hospital in Sydney.

The CIDI is a particularly useful instrument for drug and alcohol settings where the assessment

process allows for the making of a diagnosis on site, or for those settings where referral to a clinical psychologist or a psychiatrist is made so difficult that the facility to make a diagnosis is important.

Availability

The CIDI is available from the St. Vincents Hospital in Sydney and training costs, documentation and floppy disk for the instrument are approximately $600 per licence. A licence allows for automatic update of the CIDI software with new versions. Details should be confirmed by contacting the Clinical Research Unit for Anxiety Disorders, St. Vincents Hospital, Sydney on 02 9332-1188.

PART III

Screening and diagnosis of substance misuse

Alcohol

Overview

Increasingly, the importance of detecting harmful and hazardous drinking in all health care settings has been recognised and incorporated into the National Drug Strategy's strategic plan. Screening instruments need to be short, easily understood by the client, easily scored by the clinician and provide sufficiently reliable information to enable the clinician to decide whether further assessment and intervention is required. Ideally, screening for alcohol problems should be incorporated into routine practise and particularly, in order of probable impact, in medical practices, general hospitals, the workplace and welfare and general counselling services (Mattick and Jarvis, 1993).

There are a number of screening questionnaires available; in this report we have reviewed the AUDIT, MAST and the CAGE. Although comparatively new, the AUDIT has the advantage of having information on its reliability and validity from a range of cultural groups. The MAST and the CAGE were both developed in North America. They have been widely used and there is considerable information on their psychometric properties. While each instrument has its strengths and weaknesses, we recommend that the AUDIT be used when an instrument is required to screen for harmful or hazardous alcohol use. Other screening questionnaires that have been developed in Australia include the Newcastle Alcohol-related Problems Scale (Rydon, 1993) and the Alcohol-related Problems Screening Questionnaire (Ryder et al., 1988). These instruments focus more on the social and

psychological problems that accompany excessive alcohol use than on the quantity and frequency of alcohol intake or withdrawal symptoms. To date, the reliability and validity of these instruments have not been reported.

Determining the quantity and frequency of alcohol use is an essential part of an assessment when harmful or hazardous use of alcohol is suspected. However, it may be time consuming. The Comprehensive Drinker Profile and the Brief Drinker Profile (Miller and Marlatt, 1993) are particularly good examples of structured assessments. The Timeline Followback method is a procedure for assessing recent alcohol consumption, obtaining detailed information on amount consumed and the time period in which it was consumed. If a lifetime history of alcohol use is required, the Skinner Lifetime Drinking History (Skinner, 1979) may be used.

Determining the severity of alcohol dependence is important to assist in the development of an appropriate treatment response. Several questionnaire measures of the severity of alcohol dependence have been developed based upon Edwards and Gross (1976) formulation of the "alcohol dependence syndrome" (ADS). The following are the key elements: narrowing of drinking repertoire (i.e. a lifestyle where drinking is a major focus), salience of drink-seeking behaviour, increased tolerance to alcohol, repeated withdrawal symptoms, relief or avoidance of withdrawal symptoms by further drinking, subjective awareness of a compulsion to drink, and reinstatement after abstinence. The three measures of alcohol dependence reviewed are all based upon the concept of the ADS as described by Edwards and Gross (1976). More recently, concern has been expressed that the ADS fails to incorporate the subjective sense of loss of control over alcohol and the inability to abstain from drinking (e.g. Laranjeira, 1995). The SADQ goes some way to countering this criticism by the addition of the companion scale the Impaired Control Scale (ICQ) in the revised SADQ-C (Stockwell et al., 1994).

Finally, the use of biochemical measures as either screening or diagnostic measures have been the focus of considerable attention in the alcohol field. However, they are of relatively limited value in detecting an alcohol use disorder. The biochemical measures of liver function that are routinely used as indicators of excessive drinking

lack sensitivity in detecting hazardous alcohol use. More specific measures of alcohol use such as carbohydrate-deficient transferin (CDT) are not yet routinely available.

Measures used to screen for alcohol problems

Alcohol Use Disorders Identification Test (AUDIT)

Key reference

Saunders, J.B., Aasland, O.G., Babor, T.F., de le Fuente, J.R. and Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT). WHO collaborative project on early detection of persons with harmful alcohol consumption—II: *Addiction*, **88**, 791–804

Summary

The AUDIT is a 10-item screening instrument developed by a WHO collaborative study conducted in six countries: Australia, Kenya, Bulgaria, Norway, Mexico and the USA. It is designed to screen for a range of drinking problems and in particular for hazardous and harmful consumption. It is particularly suitable for primary health care settings and has been used in a number of different countries and with diverse cultural groups. A score of 8–10 is associated with harmful or hazardous drinking. As a general guide, a score of 13 or more is likely to indicate alcohol dependence.

Description and development of the AUDIT

The AUDIT was developed as an instrument that (i) would identify individuals who were drinking alcohol at harmful or hazardous levels before they sustained alcohol-related harm or developed physical dependence and (ii) had cross-cultural applicability. In the initial development phase, an international analysis of the prevalence of hazardous and harmful drinking was conducted in clinic attenders from six culturally diverse countries. Information on the drinking patterns, medical history and present condition, alcohol-

related problems, and psychological reactions to alcohol and family history (amongst others) was obtained on 1888 individuals. On the basis of this study, the authors concluded that there was sufficient uniformity in patterns of alcohol consumption amongst culturally diverse groups to warrant the development of a single standardised instrument (Saunders, Aasland, Amundsen and Grant, 1993).

The final 10 items from the AUDIT were selected from a 150-item interview schedule. The basis of selection was determined by both thorough statistical analysis and face validity. The questions were selected from four conceptual domains: alcohol consumption (items 1–3), drinking behaviour (items 4–6), adverse reactions (items 7–8) and alcohol-related problems (items 9–10).

Reliability and validity of the AUDIT

In a comparison of AUDIT scores and diagnoses based on a comprehensive structured interview, physical examination and laboratory findings, two cut-off points of 8 and 10 produced maximal sensitivity and specificity (Saunders et al., 1993). Of those individuals who scored 8 or more on the AUDIT, 95–100% were classified in the hazardous alcohol consumption group; 93–100% were classified as having abnormal drinking behaviour; 100% were alcohol dependent. Thus, the sensitivity of the AUDIT was extremely good when compared to these reference groups. At a cut-off point of 11, sensitivity of the AUDIT was .84 and specificity was .71 in detecting alcohol abuse a sample of American college students (Fleming et al., 1991).

However, the AUDIT performed rather poorly when used with a Nigerian population and DSM III-R diagnosis as the criterion standard, with a reported sensitivity of only .32 (Gureje et al., 1992). Although cultural differences may have influenced the sensitivity, the comparatively good sensitivity of the AUDIT with a Kenyan population argues against this as a major contributing factor (Sanders et al., 1993). Further research is needed to ascertain whether poor sensitivity in this study is a robust finding.

Despite these findings, and in the absence of other studies from a range of cultural groups, it is fair to conclude that research findings to date indicate that the AUDIT is a useful screening instrument and is accurate at detecting hazardous drinkers from a range of cultural groups.

Suitability for special populations

The items for the AUDIT were derived from a cross-national data set and only those items that could be translated literally and idiomatically were included (Saunders et al., 1993). The cultural diversity represented by the original six countries participating in the study suggests that the AUDIT may be used with a range of cultures. However, further research trials may be warranted.

In relation to Aboriginal or Torres Strait Islander people, specific field trials of the AUDIT have not been conducted. The Addiction Research Institute of Victoria have developed a computerised multimedia presentation of the AUDIT within an Aboriginal cultural context. It is part of an audio-visual presentation and is housed in robust consoles. To date this program and accompanying hardware have been located in 10 Koori co-operatives. Initial feedback from community members was positive (Greg Powell, personal communication, June 1996). However, the cultural relevance of several items needs to be determined before the AUDIT can be assumed to be a reliable and valid screening measure for Indigenous Australians. For example, individuals living in remote areas of Australia with relatively little, if any, information on the adverse consequences of excessive drinking may not have had feelings of remorse or guilt that are directly linked to alcohol consumption (item 8) or may not have explicitly been told to cut down (item 10). Further research should address these issues.

The AUDIT has also been adapted for use with the aged as part of a pilot project conducted by Greg Powell at the Addiction Research Institute, Victoria. Preliminary reports are also positive however, further evaluation is required.

The cut off points for potentially hazardous consumption in the AUDIT do not differentiate between males and females. As with all of the alcohol screening instruments included in this report, the quantity questions of the AUDIT do not take into account that women sustain alcohol related damage at lower levels of consumption than do men (Smith, 1986). Thus, it is possible to argue that a score of 10 for a woman would be associated with a greater risk of alcohol related physical harm. Apart from this, there are no other issues pertinent to gender and the items from the AUDIT are equally relevant for both males and females, irrespective of age.

The AUDIT is easy to read and was understood by individuals with a minimum reading level of seventh grade (Hays, Merz and Nicholas, 1995). Thus, it would be suitable for people for whom English was a second language able to read a broadsheet newspaper (reading age of 9 years required).

Research is yet to be conducted on the use of the AUDIT in a psychiatric setting. However, in the absence of data on this issue, the brevity and simplicity of the AUDIT suggests that it may be appropriate in this setting.

ALCOHOL USE DISORDERS IDENTIFICATION TEST SCREENING INSTRUMENT

Please circle the answer that is correct for you:

1. How often do you have a drink containing alcohol?

| never | monthly or less | 2–4 times a month | 2–3 times a week | 4 or more times a week |

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

| 1 or 2 | 3 or 4 | 5 or 6 | 7 to 9 | 10 or more |

3. How often do you have six or more drinks on one occasion?

| never | less than monthly | monthly | weekly | daily or almost daily |

4. How often during the last year have you found it difficult to get the thought of alcohol out of your mind?

| never | less than monthly | monthly | weekly | daily or almost daily |

5. How often during the last year have you found that you were not able to stop drinking once you had started?

| never | less than monthly | monthly | weekly | daily or almost daily |

6. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

| never | less than monthly | monthly | weekly | daily or almost daily |

7. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

| never | less than monthly | monthly | weekly | daily or almost daily |

8. How often during the last year have you had a feeling of guilt or remorse after drinking?

| never | less than | monthly monthly | weekly | daily or almost daily |

9. Have you or someone else been injured as a result of your drinking?

| no | yes, but not in the last year | yes, during the last year |

10. Has a relative or friend or a doctor or other health worker, been concerned about your drinking or suggestted you cut down?

| no | yes, but not in the last year | yes, during the last year |

Administration and scoring

The AUDIT is designed as a self-report measure. It is scored by adding each of the 10 items. Items 1 to 8 are scored on a 0–4 scale, items 9 and 10 are scored 0, 2, 4. A score of 10 or above is suggestive of alcohol problems.

In the one study in which time of administration was recorded, the AUDIT took 2 minutes to complete when presented by computer (Hays et al., 1995). The pen and paper version takes between 2–5 minutes (Claussen and Aasland, 1993)

The AUDIT may be used by any health worker who requires a reliable and brief screening instrument to identify an individual with alcohol problems. It is particularly appropriate for a primary health care setting as a screening instrument and would be usefully incorporated into routine history taking.

Availability and cost

The AUDIT is in the public domain and is reproduced below. It may be used without cost but with due acknowledgment of the source.

Michigan Alcoholism Screening (MAS Test)

Key reference

Selzer, M.L. (1971). The Michigan alcoholism screening test: The quest for a new diagnostic instrument. *American Journal of Psychiatry*, **127**, 1653–1658.

Summary

The MAST is a 24-item screening instrument designed to identify and assess alcohol abuse and dependence. The MAST has been widely used and early studies reported that it was reliable and valid. Later studies question the extent to which it measures a single core concept. Despite this reservation, the MAST has been demonstrated to have adequate sensitivity and specificity with a cut-off score of 13 in identifying individuals meeting diagnostic criteria for alcohol abuse and dependence. A shortened 13-item version of the MAST, (SMAST), can reliably be used as a self-administered screening instrument.

Description and development of the MAST

The Michigan Alcoholism Screening Test (MAST) was originally developed as a structured instrument able to detect alcoholism that could be administered by a range of clinicians (Selzer, 1971). The original 25-item MAST was developed by Selzer using a population of hospitalised alcoholics, persons convicted of drunk and disorderly behaviour or drink driving offences, and a control group; all subjects were male and interviews were conducted in Michigan. In subsequent development, item 7 was deleted and the MAST was reduced to 24 items (Selzer, Vinokur, and Rooijen, 1975). The items included in the MAST were derived from other investigations and surveys of alcoholism (Selzer, 1971). Despite this apparent lack of systematic selection of individual items, the MAST has been widely used and there is considerable information regarding its reliability and validity. A shortened version, the Short MAST (SMAST) can be reliably used (Selzer, Vinokur and van Rooijen, 1975).

Reliability and validity

The first study to investigate the reliability of the MAST was conducted by Selzer and colleagues (1975). The MAST appears to have high internal consistency with an *alpha* coefficient of .95 reported in the original validation study (Selzer et al., 1975). However, more recent reports cast doubt on the internal consistency. Crook, Oei and Young (1994) found that a number of items were not highly correlated with the total MAST score. For example, item 17 ("Have you ever been told you have liver trouble? Cirrhosis?") was endorsed by only 36% of the sample.

Some factor analytic studies of the MAST suggest that it is measuring one single factor that may be labelled "alcoholism" (Zung, 1982). However, Crook et al. (1994) suggest that inappropriate statistical procedures were employed. In an analysis of scores from Australian alcoholics (n=196) three factors emerged that were labelled "alcohol-related disabilities", "help-seeking" and "recognition of problem". On the basis of these findings, Crook et al. (1994) argue that important information about drinking patterns and alcohol symptomatology is lost if only the total score is used. Instead, calculation of three subscales would provide additional information about the three areas identified by the factor analysis. This finding requires further research.

Although a slightly outdated view, some critics of self report instruments suggest that their reliability is reduced by the reluctance of those with problem drinking to accurately report the extent and nature of their alcohol use. The relationship between social desirability, as measured by the Deny-Bad scale of the Crowne-Marlow Social Desirability Scale, and scores on the MAST indicated that although there was some relationship between the two measures, the correlations were small. Further analysis controlling for individual Deny-Bad scores found little change in MAST scores. The authors concluded that any tendency to deny undesirable characteristics does not materially affect the validity of the MAST as a screening instrument (Selzer et al., 1975; p. 122).

ROC analyses indicate that the optimal cut-off point for the MAST is 13 for detecting the presence of DSM-III alcohol abuse and dependence. At this score the MAST has a sensitivity of 91% (that is correctly identifies 91% of those subjects who meet DSM III criteria for alcohol dependence) and a specificity of 76% (that is correctly identified 76% of the non abusers) (Ross, Gavin and Skinner, 1990). A lower cut-off point of 5 was suggested by Selzer (1971) to identify harmful or hazardous drinking.

Suitability for special populations

The MAST is an American instrument and includes many phrases and words that are not part of Australian vernacular. However, the findings reported by Crook and colleagues indicate that the MAST is understood by Australian problem drinkers. The items from the MAST do reflect the experience and world view of the North American male alcoholic and it may be relatively insensitive in detecting problem drinking in Australian women. The term "partner" or "spouse" should be used instead of "girlfriend" in Item 12. Other items pose greater problems. Several of the behavioural consequences listed in the MAST are more applicable to men and probably occur infrequently with women problem drinkers. For example, item 9 refers to physical fights and item 24 refer to drunken behaviour in a public place; items 13 and 14 presuppose paid employment. Conversely, there are no questions relating to children although item 15 does include "obligations" and "family". As the primary

purpose of the MAST is as a screening instrument, further research could usefully investigate the relevance of these particular items for female problem drinkers.

The MAST has been administered in a variety of psychiatric settings. It had greater sensitivity than the comparative biochemical measures in correctly identifying alcoholic schizophrenics (classified according to DSM III criteria); however, it suffered from low specificity (many false positives) suggesting that it is useful if over-detection of problem drinking is not a problem (Toland and Moss, 1989). The MAST has been found to differentiate between non alcoholic and alcoholic schizophrenics with an overall detection rate of 80% (compared to 56% on the MacAndrew Alcoholism Scale; Searles, Alterman and Purtill, 1990). It has also been used successfully on an outpatient basis with women who were psychiatric patients (Swett, Cohen, Compaine, 1991) and with clients undergoing methadone treatment programs (Stastny and Potter, 1991).

In addition to the problems discussed above, several items on the MAST use the words "have you ever…". This time frame is likely to identify all individuals who have ever had an alcohol problem rather than those with a current problem.

Administration and scoring

The MAST is a self-report measure which takes about 10 minutes to complete. A "YES" answer on items 3, 5, 9 and 16 are scored as 1; a "YES" answer on items 1,2,4,6,7,10–15, 17,18, 21–24 are scored as a 2; items 8,19 and 20 are scored as 5. The total score is 53.

The MAST may be used by any health worker who requires a reliable and brief screening instrument to identify individual's with an alcohol problem. However, the AUDIT is probably the instrument of first choice as it is shorter, takes less time to administer and the items were derived from a cross-national study.

Availability and cost

The MAST is in the public domain and is reproduced below. It may be used without cost but with due acknowledgment of the source.

MICHIGAN ALCOHOL SCREENING TEST

		YES	NO
1.	Do you feel you are a normal drinker? (By normal we mean you drink less than or as much as most other people)	___	___
2.	Have you ever wakened the morning after drinking the night before and found that you could not remember a part of the evening?	___	___
3.	Does your wife, husband, a parent, or other near relative ever worry or complain about your drinking?	___	___
4.	Can you stop drinking without a struggle after one or two drinks?	___	___
5.	Do you ever feel guilty about your drinking?	___	___
6.	Do friends or relatives think you are a normal drinker?	___	___
7.	Are you able to stop drinking when you want to?	___	___
8.	Have you ever attended a meeting of Alcoholics Anonymous?	___	___
9.	Have you ever gotten into physical fights when drinking?	___	___
10.	Has drinking ever created a problem between you and your wife, husband, a parent, or other near relative?	___	___
11.	Has your wife, husband, a parent, or other near relative ever gone to anyone for help about your drinking?	___	___
12.	Have you ever lost friends or a partner because of your drinking?	___	___
13.	Have you ever gotten into trouble at work because of your drinking?	___	___
14.	Have you ever lost a job because of drinking?	___	___
15.	Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?	___	___
16.	Do you drink before noon fairly often?	___	___
17.	Have you ever been told you have liver trouble? Cirrhosis?	___	___
18.	After heavy drinking have you ever had delirium tremens (DTs) or severe shaking, or heard voices or seen things that weren't really there?	___	___
19.	Have you ever gone to anyone for help about your drinking?	___	___
20.	Have you ever been in a hospital because of your drinking?	___	___
21.	Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was part of the problem that resulted in hospitalisation?	___	___
22.	Have you ever been seen at a psychiatric or mental health clinic or gone to any doctor, social worker, or clergyman for help with any emotional problem, where drinking was part of the problem?	___	___
23.	Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages?	___	___
24.	Have you ever been arrested, even for a few hours, because of other drunken behaviour?	___	___

CAGE

Key reference

Ewing, J.A. (1984). Detecting alcoholism: The CAGE questionnaire. *JAMA*, **252**, 1905–1907.

Summary

The CAGE is a 4-item screening instrument designed to identify and assess potential alcohol abuse and dependence, it is not a diagnostic instrument. However, an affirmative answer to two or more questions indicates that further assessment of potential alcohol abuse is warranted. The CAGE is extremely short and easily administered taking less than a minute to complete. However, it is less sensitive to the presence of alcohol problems than either the AUDIT or MAST.

Description and development of the CAGE

The CAGE is a four-item screening questionnaire designed to identify problem drinking. Each letter reflects the core concept of each of the items: Cutdown; Annoyed; Guilty; Eye-Opener. The CAGE consists of the following four items:

1. *Have you ever felt you ought to cut down on your drinking?*

2. *Have people annoyed you by criticising your drinking?*

3. *Have you ever felt bad or guilty about your drinking?*

4. *Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?*

The CAGE questions were developed from a clinical study conducted in the late 1960's in North Carolina, USA. One hundred and thirty medical and surgical patients answered questions which had previously been demonstrated to be sensitive to detecting alcoholism. Subjects were classified into alcoholics and non alcoholics and the minimum number of questions that would usefully divide the responders into two groups was ascertained (see Ewing, 1984, for further information).

Reliability and validity of the CAGE

The items from the CAGE have good internal reliability with all four items correlating with each other indicating that the CAGE is measuring a single homogenous construct (Mischke and Venneri, 1987).

However, responses to the CAGE may not be stable over time. In the one longitudinal survey conducted, the individual CAGE questions were not answered consistently by individuals' over a period of seven years. As items 2–4 ask "Have you ever…" the authors argue that these responses should be stable over time. The data obtained suggest that these items are being interpreted to mean "recently" (Green and Whichelow, 1994).

It has also been suggested that the increased awareness of the dangers associated with alcohol consumption will produce an increase in the number of non problem drinkers answering YES to items 1 and 3. Some data in support of this has been reported by Waterson and Murray-Lyon (1988). They found that in a sample of individuals who would have raised awareness of alcohol consumption (i.e. expectant fathers) there was a higher positive response rate to these questions compared to a general population sample. This is an important issue in Australia as there is an active and growing public health campaign aimed at informing the general public about low risk drinking.

King (1986) reported that the CAGE performed well at detecting current at-risk drinking (defined as 8 or more standard drinks a day) in a UK sample, with a sensitivity of 84%, specificity of 95% and positive predictive value of 45% using a cut off point of 2 or more affirmative responses.

Suitability for special populations

The CAGE has been widely used across the world and in a range of cultures. As with any questionnaire, careful translation and back translation is required to ensure that words such as "annoyed", "bad" and "guilty", for example, are accurately translated (see Indran, 1992 for a discussion in relation to Malay, Chinese and Tamil versions of the CAGE). Similar problems occurred in the Hunter, Hall and Spargo (1991) study of alcohol consumption amongst Aboriginal people in the Kimberley region. On consultation with community members, the wording was

changed for each of the four items (Hunter, Hall and Spargo, 1991). The following questions were used in this study.

1. *Do you sometimes think you shouldn't drink, or maybe drink less?*

2. *Do you feel angry or upset when other people get on your back about drinking, or tell you to cut down?*

3. *Do you ever feel shame or guilty about drinking?*

4. *Do you sometimes take a drink early in the morning for headache or because you feel no good, a reviver?*

The CAGE has been used with Australian Aboriginals in two separate studies. In the first (Skowrow and Smith, 1986) the CAGE was completed by 106 homeless Aboriginal men in the Port Hedland area. Aboriginals with a high score on the CAGE consumed significantly more alcohol both on the day prior to interview, and on a typical drinking day, and drank more often (p 149). In a later study scores on the CAGE were related to both quantity and frequency of alcohol intake (Hunter, Hall and Spargo, 1991).

The CAGE has been used extensively in hospital settings (e.g. Niles and McCrady, 1991), in population surveys (Smart, Adlaf and Knoke, 1991), and in primary health care settings (e.g. Nilssen and Cone, 1994; Chan, Pristach and Welte, 1994) in North America, England and the West Indies.

Administration and scoring

The CAGE is easily administered and takes less than one minute to complete. It is scored by adding the number of YES answers. A score of 2 or more should be taken as an indication that the client may be drinking at harmful or hazardous levels and that further assessment or referral is warranted.

The CAGE may be used by any health worker who requires a reliable and brief screening instrument to identify individuals with an alcohol problem. It is particularly suitable if administration time and simplicity of scoring are key components in deciding on the appropriateness of a screening instrument. However, more reliable and valid information has been obtained with the short MAST and the AUDIT (Hays et al., 1995). Given that only an

additional few minutes are required to complete the AUDIT, this is recommended as the screening instrument of first choice.

Availability and cost

The CAGE is in the public domain and is reproduced above. It may be used without cost but with due acknowledgment of the source.

T-ACE and the TWEAK

Key reference

Russell, M. and Bigler, L. (1979). Screening for alcohol-related problems in an outpatient obstetric-gynaecologic clinic. *American Journal of Obstetrics and Gynaecology*, **134**, 4–12.

Summary

The T-ACE and the TWEAK are instruments developed specifically to identify at-risk drinking in pregnant women. They are both short and easily administered and scored. Initial reports suggest that they are both superior instruments to either the CAGE or the MAST in samples attending prenatal clinics. A cut-off score of 2 or more is used to indicate that at-risk drinking may be present. Further research on their reliability and validity with non pregnant women is needed.

Description and development of the T-ACE

It has been consistently argued that the MAST may be less sensitive to the presence of alcohol problems in female drinkers, given its focus on problems areas associated with male activities and lifestyle. Although the CAGE does not appear to have questions that would make it less sensitive with women, Waterson and Murray-Lyon (1988) found that it was less sensitive in detecting problem drinking in prenatal clinics than in psychiatric settings. Concern was also expressed that pregnant women may have greater pressure to minimise their alcohol use, and that this may have contributed to the reduced sensitivity of the CAGE in this particular population. Two screening instruments have been developed for use with pregnant women. The initial study on which the T-ACE is based was conducted on black pregnant women in a prenatal

clinic in Detroit. In addition to the administration of the MAST and the CAGE, a tolerance question was included *"How many drinks does it take to make you feel high?"* (Sokol et al., 1989). Based on this study the T-ACE was devised. It consists of the Tolerance question and the three CAGE questions:

1. *Have you ever felt you ought to cut down on your drinking?*
2. *Have people annoyed you by criticising your drinking?*
3. *How many drinks does it take to make you feel high ?*
4. *Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?*

Reliability and validity of the T-ACE

The T-ACE had a sensitivity of 76 per cent in predicting risk drinking during pregnancy compared with 59 and 76 per cent for the CAGE and the MAST respectively. Specificities for the T-ACE, CAGE and MAST were 79, 82 and 76 percent respectively.

The Tolerance question was changed to *"How many drinks can you hold?"* (Russell, Martier, Sokol and Mudar, 1994). This question is scored positive (i.e. receives 2 points) if women report being able to consume more than five drinks before falling asleep or passing out. This increased the sensitivity and specificity of the T-ACE to 91 and 81 per cent.

Description and development of the TWEAK

An alternative self-administered form of the MAST was developed for use in a female population (Russell and Bigler, 1979). Questions were eliminated if they pertained to behaviour that was more typical of men, e.g., fights or identified individuals whose problems with alcohol had already been recognised. Russell and Skinner (1988) found that three questions identified 70 per cent of women reporting two or more indications of problem drinking. The three questions covered blackouts, feeling the need to cut down on drinking and having close friends or relative worry or complain about drinking in the last year.

Reliability and validity of the TWEAK

The TWEAK has been compared with the T-ACE, CAGE and MAST. When the "How many drinks does it take to get you high?" version of the Tolerance question was included sensitivity scores for the TWEAK, and T-ACE were 79 and 70 percent and specificity scores were 83 and 85 percent. By way of comparison sensitivity scores for the CAGE and the MAST were only 49 percent and specificity scores were 93 and 95 percent respectively. On the basis of this study, Russell (1994) concludes that the TWEAK appears to be somewhat more sensitive and less specific than the T-ACE but both clearly outperform the MAST and the CAGE test in screening for risk drinking during pregnancy.

Suitability for special populations

These questionnaires need to be evaluated in Australia amongst a range of cultural groups to ensure that these initial US findings are generalisable across cultures and class. Whether these screening instruments are more appropriate for women in general or are specific for pregnant women also needs to be addressed.

Administration and scoring

The T-ACE is easily administered and takes less than one minute to complete. It is scored by adding the number of YES answers. A score of 2 or more should be taken as an indication that the client may be drinking at harmful or hazardous levels and that further assessment or referral is warranted.

The TWEAK is scored slightly differently and care should be taken in scoring this instrument. Item 1 scores 2 points if a woman reports she can hold more than five drinks, a YES response to the Worry questions scored 2 points and a YES response to the last three questions scores 1 point each. Thus the maximum score obtained is 7. A total score of 2 or more indicates the woman is likely to be a risk drinker.

Availability and cost

Both instruments are in the public domain and TWEAK reproduced below. They may be used without cost but with due acknowledgment of the source.

TWEAK Test

T	How many drinks can you hold?
W	Have close friends or relatives worried or complained about your drinking in the last year?
E	Do you sometimes take a drink in the morning when you first get up?
A	Has a friend or family member ever told you about things you said or did while you were drinking that you could not remember?
K(C)	Do you sometimes feel the need to cut down on your drinking?

Key: **T** : Tolerance; **W**: Worried; **E**: Eye opener; **A**: Amnesia; **K(C)**: Cut down

Other Screening Questionnaires

Alcohol-related Problems Screening Questionnaire

Key reference

Ryder, D., Lenton, S., Harrison, S. and Dorricott, J. (1988). Alcohol-related problems in a general hospital and general practice: Screening and the preventive paradox. *Medical Journal of Australia*, **149**, 355–360.

Newcastle Alcohol-related Problems Scale (NAPS)

Key reference

Rydon, P. (1991). Detection of alcohol problems in general practice: Development of the Newcastle alcohol-related problems scale. Unpublished doctoral dissertation, University of Newcastle, New South Wales, Australia.

Assessment of quality and frequency of alcohol use

Self report

Despite the many reservations about the accuracy of self report there is much to commend this method of obtaining basic information about the quantity and frequency of alcohol use. Ensuring that both the interviewer and client are working from a shared knowledge base is, however, an essential first step in increasing the accuracy and reliability of the information obtained. Introducing the concept of a standard drink in which one standard drink is equal to 10 gm of ethanol, provides a common unit of measurement across a range of alcoholic drinks. If the client is not already familiar with the concept, this familiarisation also provides an important educative function. It is also important to impart accurate information about low risk, harmful and hazardous drinking. The following are the current guidelines from the National Health and Medical Research Council (NH&MRC; Pols and Hawks, 1992).

Low risk drinking

The Australian National Health and Medical Research Council's (NH&MRC) recommended guidelines for low risk drinking are 14 standard drinks for women and 28 standard drinks for men per week, with at least two alcohol free days (Pols and Hawks, 1992). The risk of developing alcohol related health problems is directly related to the quantity of alcohol drunk.

Harmful or hazardous drinking

A client who regularly exceeds the NH&MRC guidelines (Pols and Hawks, 1992) may be drinking at either harmful or hazardous levels. For males, the present levels of harmful drinking are 4–6 units per day or more than 28 units a week. For women harmful drinking is defined as 2–4 units per day or 14–28 units per week. Consumption of more than 6 units per day or 42 units per week constitute harmful drinking for men while the comparable figure for women is more than 4 units per day or 28 units per week.

Quantity and frequency

Alcohol intake can be measured directly by asking a client how much they drink (quantity) and how often they drink (frequency). There are many ways in which quantity and frequency

information has been obtained (see Room, 1990, for a review). The most common method used in surveys of drinking patterns was developed in the late 1960's by Cahalan and colleagues (Cahalan, Cisin and Crossley, 1967). For each type of alcoholic beverage, i.e. wine, beer, spirits, respondents answer the following questions:

Think of all the times you have had .... recently.

When you drink......., how often do you have five or six?

When you drink......., how often do you have three or four?

When you drink......., how often do you have one or two?

The frequency scale for each alcoholic drink is as follows:

Three or more times a day

Two times a day

Once a day

Nearly every day

Three or four times a week

Once or twice a week

Two or three times a month

About once a month

Less than once a month but at least once a year

Less than once a year

I have never had...

Reliability of self reported alcohol consumption

The reliability of problem drinkers self-report has often been questioned with a commonly held view that problems drinkers either deliberately under report their alcohol use due to an unconscious "defence mechanism" or consciously in order to avoid the repercussions of admitting to an alcohol problem. In fact, there is very little empirical evidence which suggests that problem drinkers deliberately lie or minimise their alcohol use in self report more than any other forms of questioning. There is a body of literature that

reports a high level of agreement between problem drinkers self-reported use of alcohol and other informational sources, such as family members or spouses (e.g. Miller, Crawford and Taylor, 1979). In a review of the literature, Midanik (1982) concluded that the research studies investigating the validity of self-reported alcohol use found a degree of agreement between problem drinkers and collaterals with no consistent detection of error (p 363). Indeed Miller (1983) provides evidence indicating that an interviewer who is confrontational, authoritative and challenging is less likely to obtain accurate information regarding alcohol use than an interviewer who is empathetic and nonthreatening. There are, however, factors that may affect the reliability and accuracy of self-reported alcohol use which the clinician should always be sensitive to. Obtaining corroborative information in such circumstances is prudent and may be done through interview of family members or spouses or by the use of biochemical measures.

Administration and scoring

The Quantity-Frequency methods generally do not provide information on atypical drinking periods but assume that drinkers patterns are stable. Thus, this procedure does not detect binge drinkers. By focusing only on consumption, there is also no indication whether the individual has a concern about their own alcohol consumption. While it is essential that information about quantity and frequency be incorporated into a standard history in a client presenting at an alcohol treatment agency, it is less time consuming for the clinician (and possibly less threatening for the client) to administer one of the standardised screening instruments such as the AUDIT, MAST or CAGE in a setting in which the primary purpose is to screen for potentially hazardous or harmful alcohol use.

Availability and cost

Nil

ALCOHOL-RELATED PROBLEMS SCREENING QUESTIONNAIRE

NAME: DATE:___/____/___

<u>Please answer the following questions by placing a circle around the appropriate answer.</u> All of these questions concern the last 12 months.

1	In the last 12 months have you suffered from an ulcer that your doctor said was related to your drinking?	YES	NO
2	In the last 12 months have you been off work more than once because of your drinking?	YES	NO
3	In the last 12 months has your doctor advised you to cut down on your drinking?	YES	NO
4	In the last 12 months have you had any money worries that have been due to or made worse by your drinking?	YES	NO
5	In the last 12 months have you had any weight problems that were contributed to by your drinking?	YES	NO
6	In the last 12 months on any ten occasions, not necessarily consecutively, has your daily consumption been greater than 14 middies of beer, 14 glasses of wine, 7 double measures of spirits or the equivalent?	YES	NO
7	In the last 12 months have you been in an accident at work or on the road that was at least partly related to your drinking?	YES	NO
8	In the last 12 months have you been asked to leave a place (a party, pub or club) because you had too much to drink?	YES	NO
9	In the last 12 months have you had any problems at work due to your drinking?	YES	NO
10	In the last 12 months have there been arguments at home about your drinking?	YES	NO
11	In the last 12 months have you got into arguments more often if you've had a drink?	YES	NO
12	In the last 12 months have you had any trouble with the police connected with your drinking?	YES	NO
13	In the last 12 months have you had a drink in the morning to cure a hangover or settle yourself?	YES	NO
14	In the last 12 months have you noticed, after a night of drinking, that your hands tremble the next day?	YES	NO
15	In the last 12 months have you tried to cut down on your drinking and found some difficulty in doing this?	YES	NO
16	In the last 12 months have you set yourself a limit, and been totally unable to keep to that limit?	YES	NO

On how many days a week do you usually drink alcohol?		On a day when you drink alcohol, how many drinks do you usually have?	
I don't drink alcohol	[ ]	I don't drink alcohol	[ ]
Less than once a week	[ ]	1 or 2 drinks	[ ]
On 1 or 2 days a week	[ ]	3 or 4 drinks	[ ]
On 3 or 4 days a week	[ ]	5 to 8 drinks	[ ]
On 5 or 6 days a week	[ ]	9 to 12 drinks	[ ]
Every day	[ ]	13 to 20 drinks	[ ]
		More than 20 drinks	[ ]

THE NEWCASTLE ALCOHOL PROBLEMS SCALE

A. Over the past MONTH, my own OR someone else's DRINKING:	Often	Sometimes	Rarely	Never
1 Added to me worrying about the future	4	3	2	1
2 Added to me feeling nervous	4	3	2	1
3 Added to me feeling angry	4	3	2	1
4 Added to me feeling emotionally upset	4	3	2	1
5 Added to me feeling concerned about someone close to me	4	3	2	1

B. Over the past MONTH, my own OR someone else's DRINKING:	Often	Sometimes	Rarely	Never
1 Added to myself and someone close putting off doing things together	4	3	2	1
2 Added to myself and someone close become annoyed with each other	4	3	2	1
3 Added to myself and someone close arguing over past disagreements	4	3	2	1
4 Added to myself and someone close criticising one another	4	3	2	1
5 Added to myself and someone close keeping out of each other's way	4	3	2	1
6 Added to myself and someone close using threats	4	3	2	1

If you DO NOT live with a child aged under 16 tick this ☐ and go to Question D

C. Over the past MONTH, my own OR someone else's DRINKING:	Often	Sometimes	Rarely	Never
1 Added to a child living with me not doing as s/he was told	4	3	2	1
2 Added to a child living with me having a temper tantrum	4	3	2	1
3 Added to a child living with me crying after arguing with someone at home	4	3	2	1
4 Added to a child living with me becoming upset/tense	4	3	2	1

Drinking, or concern over someone else's drinking, may cause short term difficulties with work. By work we mean your USUAL OCCUPATION whether it be paid or voluntary work, home-duties or study.

D. Over the past MONTH, my own OR someone else's DRINKING:	Often	Sometimes	Rarely	Never
1 Added to me not paying attention to details while working	4	3	2	1
2 Added to me having difficulty concentrating on work	4	3	2	1
3 Added to me making mistakes while working	4	3	2	1
4 Added to me not getting much work done	4	3	2	1

E. Over the past MONTH, my own OR someone else's DRINKING:	Often	Sometimes	Rarely	Never
1 Added to me having disagreements about how money should be spent	4	3	2	1
2 Added to me being unable to save	4	3	2	1
3 Added to me having difficulty making money last from one pay to the next	4	3	2	1
4 Added to me not having enough money to meet the cost of household needs	4	3	2	1

Comprehensive Drinker Profile

Key reference

Miller, W.R. and Marlatt, A. (1984). *Manual for the Comprehensive Drinker Profile, Brief Drinker Profile and Follow up Drinker Profile*. Psychological Assessment Resources, Inc. PO Box 98, Odessa, Florida, 33556

Summary

The Comprehensive Drinker Profile (CDP), Brief Drinker Profile (BDP) and Follow-up Drinker Profile (FUDP) are structured interviews that provide information on alcohol consumption, drinking patterns, alcohol related problems and demographic background. They are easily understood by both clinician and client, and cover areas that are of relevance in the assessment and treatment of alcohol problems. Some comparative information is included, but norms from a diverse sample of drinkers are not provided. These instruments make an excellent assessment tool for clinicians working with clients who present with alcohol problems. The duration of time required do not make them suitable screening instruments.

The Comprehensive Drinkers Profile, (CDP), Brief Drinker Profile, (BDP), and Follow-Up Drinker Profile, (FUDP) provide a comprehensive assessment and history of drinking and are administered as a semi-structured interview. They were developed in the early 1970's by Marlatt and colleagues. All three instruments are derived from the CDP and closely follow the structure and format of this instrument. A detailed description of the CDP is provided, and the reader is referred to other sources for additional information on the BDP and FUDP.

Description of the CDP

The CDP provides a systematic and extensive assessment of areas of life functioning. Section A focuses on demographic information, Section B focuses on drinking history, including an interviewer-administered version of the MAST, and Section C obtains motivational information.

In relation to determining the quantity and frequency of drinking, Section B includes a subsection entitled Present Drinking Pattern. The information obtained is used to classify drinkers as either periodic drinkers, steady drinkers or a combination of both. Further detailed information is obtained by charting daily drinking patterns including: type of alcohol consumed, % alcohol content, amount drunk on each occasion, and approximate time span during which it is consumed. A table is provided to enable approximate blood alcohol concentration (mg%) reached after three hours of drinking.

Administration and scoring

Normative data are provided on the quantitative variables based upon 103 outpatients from a clinic for problem drinkers at the Department of Psychology, University of New Mexico. In addition to obtaining quantity and frequency information, a quantitative index of strength of family history of alcoholism may be obtained.

The manual is comprehensive, well written and contains a number of references to treatment outcome studies to support all aspects of the CDP. It is a useful instrument for both researchers and clinicians working with people presenting for treatment for alcohol problems.

Availability and cost

It is available from Psychological Assessment Resources, INC. P O Box 98/ Odessa, Florida 33556. Cost information available from Psychological Assessment Resources.

Timeline Followback Method

Key reference

Sobell L and Sobell, M.B. (1992). Timeline Followback: A technique for assessing self-reported alcohol consumption. In R. Litten and J. Allen (eds) *Measuring Alcohol Consumption*. Humana Press Inc.

Summary

The Timeline Followback Method (TLFB) obtains precise information on the amount of alcohol consumed, duration of each drinking session over a specified period of time; usually 3 months. The key feature of this method is a blank calender which the clinician and client complete together to obtain a detailed description of alcohol consumption. This procedure produces a detailed pattern of consumption. The time taken to complete the TLFB depends upon the time period covered and an individual drinker's pattern of consumption. It is not a useful method to use in a primary care setting. However, in a treatment or research setting TLFB has been demonstrated to have high test-retest reliability, and the quantity measures obtained correlate well with other indices of alcohol problems, such as severity of dependence and biochemical measures of liver function.

Description of the TLFB

The Timeline Followback Method (TLFB) is a technique developed to enable an accurate retrospective account of alcohol consumption to be made over a specified time period. The key element of this approach is the use of a calendar on which the client provides an estimate of the amount of alcohol drunk on each drinking occasion during the time period. In order to assist in memory recall and to provide a framework for the client to work within, the first task is to note all events that may assist with recall. Such events may include national holidays, newsworthy events and significant personal events. It is then possible to build a picture of alcohol consumption around these significant dates. Any personal diary that might assist in recall is also included in the procedure. The client is then able to proceed with

filling in the drinking days, noting amount consumed and, if required, the number of hours taken to consume alcohol.

Reliability

The TLFB has been used extensively in the research literature for over ten years and it has been found to have high test-retest reliability. There is also a high degree of agreement between client self report and official records such as days in gaol or treatment facilities.

Concurrent validity

Overall consumption, number of heavy drinking days, and number of mean drinks per drinking day, were all positively correlated with a standardised severity of dependence scale (ADS) and scores on the short MAST indicating that the level of alcohol problems or dependence was directly related to drinking behaviour as determined by the TLFB method. There was a similarly high level of agreement between those drinking variables derived from the TLFB method and biochemical indices of alcohol-related liver dysfunction.

Administration and scoring

This is a time consuming method of obtaining information on alcohol consumption. Although it has been suggested that information for a 3 month period should be obtained in 10 minutes, it is the authors' experience that at least 30 minutes should be allowed. Before using this procedure, clinicians are advised to read the key papers.

Special populations

There are no specific issues pertaining to the use of the TLFB method in special populations.

Measures used to assess severity of alcohol dependence

Severity of Alcohol Dependence Questionnaire (SADQ-C)

Key reference

Stockwell, T., Sitharthan, T., McGrath, D. and Lang, E. (1994). The measurement of alcohol dependence and impaired control in community samples. *Addiction*, **89**, 167–174

Summary

The Severity of Alcohol Dependence Questionnaire (SADQ-C) is a 20-item questionnaire designed to measure the severity of dependence on alcohol. It is divided into five subscales: physical withdrawal symptoms, affective withdrawal symptoms, craving and withdrawal relief drinking, consumption and reinstatement. It is a widely used measure of severity of dependence, particularly in Britain and Australia, and has demonstrated reliability and validity. It is relatively quick to complete (approximately 5 minutes) and is easy to score. It is probably most useful as an assessment tool for use with problem drinkers rather than a screening instrument. However, a shortened form has been used successfully with a non-clinic population of drinkers.

Description and development of the SADQ

The SADQ is a 20 item questionnaire based upon the premise formulated by Edwards and Gross (1976) that alcohol dependence comprises a cluster of symptoms which derive from a single syndrome centred around a "drive" to consume alcohol. This "drive" is focused upon the need to drink in order to either avoid or to alleviate alcohol withdrawal symptoms (Stockwell et al., 1979). The original SADQ is divided into five sections corresponding to (i) physical withdrawal symptoms, (ii) affective symptoms of withdrawal, (iii) craving and withdrawal-relief drinking, (iv) typical daily consumption and (v) reinstatement of withdrawal symptoms after a period of

abstinence. The more recent version, the SADQ-C, has an additional companion scale, the Impaired Control Scale (ICQ) complementing the SADQ questions that focus on the physical and affective aspects of alcohol dependence. The ICQ assesses the extent to which a client perceives themselves to be out of control with regard to their alcohol use.

The SADQ was developed at the Maudsley Hospital in London in the late 1970's. The original published study was based on a small sample of alcoholics who were admitted to the Maudsley Hospital for treatment, (80 males, 24 females). In the later version, the SADQ-C, the sample size was extended to include 944 subjects from a the general population and 197 subjects attending a clinic for controlled drinking.

Reliability and validity

The SADQ is a widely used measure of the severity of alcohol dependence and has the most evidence of reliability and validity of all the major self-report questionnaires (Davidson, 1986). Below, a brief overview of key papers are presented that have bearing on the psychometric properties of the SADQ. The original SADQ is considered to be a valid and reliable instrument. In the original published study (Stockwell et al., 1979) there were highly significant correlations between the sections measuring physical withdrawal symptoms, affective withdrawal symptoms, withdrawal relief drinking and craving, typical daily consumption and reinstatement. The SADQ was also sensitive to the degree of alcohol dependence assessed by retrospective analysis of case notes, with 82% concordance between the clinician's ratings of alcohol dependence and the scores of the SADQ. These findings were largely replicated by an independent team of researchers using a sample of Irish drinkers (Meehan, Webb and Unwin, 1985). Stockwell et al. (1983) suggest that a score of 30 should be taken to indicate severe dependence; a recommendation with which Meehan et al. (1985) concur.

In a further study of construct validity, Stockwell, Murphy and Hodgson (1983) reported significant correlations between (i) scores on the SADQ and observed withdrawal severity and (ii) SADQ scores and narrowing of drinking repertoire assessed by the Drinking Pattern Interview.

The SADQ has been shown to have high test-retest reliability when administered within an interval of

two weeks on 45 inpatients in an Alcohol Treatment Unit (Stockwell, Murphy and Hodgson, 1983).

Suitability for special populations

The SADQ has been used with a range of cultural groups (e.g. Ee Heok Kua et al., 1990), although to date, the SADQ has always been administered in English. The questionnaire requires a reasonable understanding of English, and if used with clients for whom English is a second language, close attention should be paid to ensure that they understand the questions.

It has been suggested that 30 is used as the cut off point for severe dependence. However, it is arguable that given the contribution of the consumption questions to the total score, a lower cut off score may be more appropriate for females. As women typically represent a small proportion of samples examined in research, further research regarding this point should be conducted.

A shortened version of the SADQ-C has been used in a general population sample of 1272

subjects (Stockwell et al. 1994). The modified and shortened SADQ-C appeared to be both reliable and valid when compared with the original SADQ. Stockwell et al. (1994) suggest that this is an appropriate instrument to use when a measure of alcohol dependence is required in a general community sample.

Administration and scoring

The SADQ-C takes between 5–10 minutes to complete. Items 1, 3 and 4 of the ICQ is scored on a 4-point scale ranging from 0 (never or almost never) to 3 (nearly always). Items 2 and 5 are scored in reverse with a score of 0 (nearly always) to a score of 3 (never or almost never). The twenty items of the SADQ are all scored as follows: 0 = never or almost never, 1 = sometimes, 2 = often, 3 = nearly always.

Availability and cost

The SADQ-C is in the public domain and is reproduced below. It may be used without cost but with due acknowledgment of the source.

SEVERITY OF ALCOHOL DEPENDENCE QUESTIONNAIRE FORM–C (SADQ-C)

NAME: SEX: M/F DATE OF BIRTH: ___/___/___   AGE

Have you drunk any alcohol in the past six months?   YES/NO

If YES, please answer all the following questions by circling the most appropriate response.

(Section A—ICQ) DURING THE PAST <u>SIX MONTHS</u>:

1. After having just one or two drinks, I felt like having a few more.

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

2. After having two or three drinks, I could stop drinking if I had other things to do.

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

3. When I started drinking alcohol, I found it hard to stop until I was fairly drunk.

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

4. When I went drinking, I planned to have at least six drinks.

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

5. When I went drinking, I planned to have no more than two or three drinks.

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(Section B—SADQ, Form-C) DURING THE PAST SIX MONTHS:

1. The day after drinking alcohol, I woke up feeling sweaty.

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

2. The day after drinking alcohol, my hands shook first thing in the morning.

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

SEVERITY OF ALCOHOL DEPENDENCE QUESTIONNAIRE FORM-C (SADQ-C) (cont)

3. The day after drinking alcohol, I woke up absolutely drenched in sweat.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

4. The day after drinking alcohol, my whole body shook violently first thing in the morning if I don't have a drink.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

5. The day after drinking alcohol, I dread waking up in the morning.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

6. The day after drinking alcohol, I was frightened of meeting people first thing in the morning.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

7. The day after drinking alcohol, I felt at the edge of despair when I awoke.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

8. The day after drinking alcohol, I felt very frightened when I awoke.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

9. The day after drinking alcohol, I liked to have a morning drink.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

10. The day after drinking alcohol, in the morning I always gulped my first few alcoholic drinks down as quickly as possible.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

11. The day after drinking alcohol, I drank more alcohol in the morning to get rid of the shakes.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

12. The day after drinking alcohol, I had a very strong craving for an alcoholic drink when I awoke.

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

13. I drank more than a quarter of a bottle of spirits in a day (or 1 bottle of wine or 7 middies of beer).

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

14. I drank more than half a bottle of spirits in a day (or 2 bottles of wine or 15 middies of beer).

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

15. I drank more than one bottle of spirits per day (or 4 bottles of wine or 30 middies of beer).

   NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

16. I drank more than two bottles of spirits per day (or 8 bottles of wine or 30 middies of beer).

NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(Section C—SADQ, Form-C) IMAGINE THE FOLLOWING SITUATION:

(1) You have HARDLY DRUNK ANY ALCOHOL FOR A FEW WEEKS.

(2) You then drink VERY HEAVILY for TWO DAYS.

HOW WOULD YOU FEEL THE MORNING <u>AFTER</u> THOSE TWO DAYS OF HEAVY DRINKING?

17. I would start to sweat.	NOT AT ALL	SLIGHTLY	MODERATELY	QUITE A LOT
18. My hands would shake.	NOT AT ALL	SLIGHTLY	MODERATELY	QUITE A LOT
19. My body would shake.	NOT AT ALL	SLIGHTLY	MODERATELY	QUITE A LOT
20. I would be craving for a drink.	NOT AT ALL	SLIGHTLY	MODERATELY	QUITE A LOT

Short Alcohol Dependence Data Questionnaire (SADD)

Key reference

Raistrick, D., Dunbar, G and Davidson, R. (1983). Development of a questionnaire to measure alcohol dependence, British Journal of Addiction, **78,** 89–95

Summary

The SADD is used to measure the severity of alcohol dependence. It has many similarities with the SADQ although is less focused on the experience of withdrawal symptoms and includes behavioural and subjective aspects of alcohol dependence. It has good test-retest reliability and construct validity, and correlates highly with the SADQ. The authors argue that it is relatively independent of socio-cultural influences and there is some independent evidence to support this.

Description and development of the SADD

Like the SADQ, the SADD is based upon the Edwards and Gross formulation of the Alcohol Dependence Syndrome (Davidson and Raistrick, 1986). It is a 15-item self-report questionnaire aimed to provide a measure of the severity of dependence on alcohol based upon a continuum of mild problem drinking to severe alcohol dependence. The major difference from the SADQ is the inclusion of items reflecting behavioural and subjective changes associated with problem drinking. Davidson and Raistrick (1986) suggest that the SADD is more sensitive to drinkers in the mild to moderate problem range than the SADQ because it includes cognitive and behavioural indices of problem drinking. Therefore it has greater sensitivity in identifying those drinkers not yet experiencing alcohol withdrawal phenomena.

The present 15 item SADD was derived from a 39 item Alcohol Dependence Data (ADD) questionnaire given to three groups: regular drinkers (41), psychiatric patients (30) and patients admitted to an alcohol treatment unit (174). Items were included from the original 39 item version if: (i) most respondents endorsed "never" and fewest responded "always"; (ii) those items correlated significantly with overall score.

Reliability and validity

There has been no test-retest reliability data reported on the SADD. However, in the first report (Raistrick, et al. 1983) split-half reliability found a significant correlation between total score on odd and even numbered questions indicating reasonable internal consistency.

Davidson, Bunting and Raistrick (1989) conducted further analyses to determine the extent to which the SADD could be said to be measuring a single concept: the alcohol dependence syndrome. Statistical analysis (confirmatory factor analysis) was consistent with the proposition that the SADD was measuring a single concept.

The construct validity of the SADD has been investigated in several studies in which the SADD has been compared to a variety of measures related to the alcohol dependence syndrome. Davidson and Raistrick (1986) report the results of three separate studies conducted using patients of the Leeds Addiction Unit. SADD scores were significantly correlated with (i) alcohol intake (most recent heavy drinking period and a problem checklist; (ii) SADQ scores and (iii) an interview-based assessment of alcohol dependence. There was a high correlation between SADQ scores and SADD scores in a sample of 160 Irish problem drinkers, providing further evidence that the two questionnaires are measuring the same theoretical construct (Doherty and Webb, 1989).

Suitability for special populations

Raistrick et al. (1983) considered the SADD to be relatively free of socio-cultural influences, although it has not been widely used with other cultural groups. The applicability of the SADD was investigated in a Brazilian study. Phase one involved administering the English version and the translated Portuguese version, two weeks apart, to bilingual university students with no history of problem drinking. Scores from the Brazilian translation of the SADD were highly correlated with the original English form. To investigate the usefulness of the SADD with an illiterate population, the authors administered the SADD in two ways: first as the self-completion version on two occasions and second as a self-completion and as an interview one week apart. The test-retest reliability was extremely high as was the correlation between the self-completion and interview administration (Jorge and Masur, 1985). On the basis of this finding, and bearing in mind the difficulties involved in the accurate

translation of questionnaires, we suggest that the SADD may be used with a range of ethnic groups and cultures within Australia. Whether it is appropriately used with Aboriginal and Torres Strait Islanders requires further research.

Both SADQ and SADD are routinely administered to adolescents who are clients of the NSW Juvenile Justice System. Although the use of instruments have not been subjected to empirical investigation, the clinicians who administer them report that the SADD is more easily understood and completed by their client group than the SADQ (Jennifer Barton, personal communication). Although further research is required, this finding may be helpful in guiding clinical practise.

Administration and scoring

The SADD takes less than 5 minutes to administer. Each item is scored as follows: never = 0; sometimes = 1; often = 3; nearly always = 4. A total score is obtained by adding the score from each of the items.

A score of 1–9 indicates low dependence; 10–19 medium dependence and a score of 20 or more high dependence.

Availability and cost

The SADD is in the public domain and is reproduced below. It may be used without cost but with due acknowledgment of the source.

SHORT ALCOHOL DEPENDENCE DATA QUESTIONNAIRE (SADD)

SADD: The following questions cover a wide range of topics to do with drinking. Please read each question carefully but do not think too much about its exact meaning. Think about your MOST RECENT drinking habits and answer each question by placing a tick ( ) under the MOST APPROPRIATE heading. If you have any difficulties ASK FOR HELP.

	NEVER	SOMETIMES	OFTEN	NEARLY ALWAYS
1. Do you find difficulty in getting the thought of drink out of your mind?	____	____	____	____
2. Is getting drunk more important than your next meal?	____	____	____	____
3. Do you plan your day around when and where you can drink?	____	____	____	____
4. Do you drink in the morning, afternoon and evening?	____	____	____	____
5. Do you drink for the effect of alcohol without caring what the drink is?	____	____	____	____
6. Do you drink as much as you want irrespective of what you are doing the next day?	____	____	____	____
7. Given that many problems might be caused by alcohol do you still drink too much?	____	____	____	____
8. Do you know that you won't be able to stop drinking once you start?	____	____	____	____
9. Do you try to control your drinking by giving it up completely for days or weeks at a time?	____	____	____	____
10. The morning after a heavy drinking session do you need your first drink to get yourself going?	____	____	____	____
11. The morning after a heavy drinking session do you wake up with a definite shakiness of your hands?	____	____	____	____
12. After a heavy drinking session do you wake up and retch or vomit?	____	____	____	____
13. The morning after a heavy drinking session do you go out of your way to avoid people?	____	____	____	____
14. After a heavy drinking session do you see frightening things that later you realise were imaginary?	____	____	____	____
15. Do you go drinking and the next day find you have forgotten what happened the night before?	____	____	____	____

Alcohol Dependence Scale (ADS)

Key reference

Skinner, H.A. and Horn, J.L. (1984). *Alcohol Dependence Scale (ADS): Users Guide*. Toronto: Addiction Research Foundation.

Summary

The Alcohol Dependence Scale (ADS) is designed to identify and assess alcohol abuse and dependence. Like the SADQ-C and SADD, it is based upon Edwards and Gross (1976) conceptualisation of the alcohol dependence syndrome. It is widely used and has demonstrated reliability and validity. It has been used with specific cultural groups, although reports of its use with an Australian sample were not found.

Description and development of the Alcohol Dependence Scale

The ADS is a 25 item self-report questionnaire that is used to measure severity of alcohol dependence by asking about alcohol use in the past 12 months. It reflects four key aspects of the alcohol dependence syndrome: loss of behavioural control, psychoperceptual withdrawal symptoms, psychophysical withdrawal symptoms and obsessive-compulsive drinking style. Like the SADQ and SADD reviewed previously, it is based on the concept of the alcohol dependence syndrome as described by Edwards and Gross (1976).

The ADS was derived from the Alcohol Use Inventory (Horn et al., 1974). In the original validation study, 225 subjects who sought treatment for alcohol problems from the Addiction Research Foundation, Toronto, Canada, were administered the 174 item Alcohol Use Inventory, the ADS and the MAST (amongst other instruments).

Reliability and validity

In the original Skinner and Horn (1984) study, items from the ADS were reported to show high internal consistency (*alpha* coefficient of .92). Factor analysis found that the scale consisted of three factors: the first major factor accounted for items reflecting withdrawal symptoms, the second and third smaller factors were made up of items reflecting obsessive-compulsive drinking patterns and loss of behavioural control. These findings were replicated by Kivlahan, Sher and Donovan (1989).

The ADS has good concurrent validity. Skinner and Horn (1984) reported that the ADS score was correlated with both daily consumption of alcohol and lifetime use of alcohol, social consequences from drinking, prior treatment for alcohol abuse, use of alcohol to change mood and feelings of guilt over drinking. The ADS was also significantly correlated with the MAST (Skinner and Horn, 1984; Ross, Gavin and Skinner, 1990).

In a study investigating the diagnostic validity of the MAST and ADS, Ross et al., (1990) reported that a cut-off score of 6 or 7 correctly identifies 94% of patients with a current alcohol abuse or dependence disorder (sensitivity), it correctly identifies 75% of nonabusers (specificity). The overall accuracy of the ADS at this cut-off point is 89%.

Suitability for special populations

The concept of the alcohol dependence syndrome and the use of the ADS was investigated in a sample of American and Russian inpatients and outpatients in alcoholism treatment programs (Allen et al., 1994). The ADS had a similar factor structure for both samples leading the authors to suggest that the ADS may be a useful instrument in future cross cultural research. The ADS has also been successfully adapted for use with a Tamil sample of alcoholics in India. The translated version of the ADS was found to have high internal reliability (Rajendran and Cheridan, 1990). However, there has not been any reports of its use with Aboriginal and Torres Strait Islanders.

Administration and scoring

Scoring instructions are given in the manual. No special training or expertise is required to interpret the ADS.

Availability and cost

The ADS is copyrighted. It can be purchased from Marketing Services, Addiction Research Foundation, 33 Russell St., Toronto, Ontario, M5S 2S1 (1-800-661-1111).

Biochemical measures used in the assessment of alcohol use

Blood Alcohol Levels (BAC)

Blood alcohol concentration refers to the concentration of alcohol in the blood and is measured in milligrams of alcohol per 100 ml of blood (mg%). Blood alcohol concentrations can be reliably measured using breath alcohol testing equipment, a non invasive procedure in which the concentration of alcohol in end-expiratory breath is measured. This is an accurate reflection of the acute body burden of alcohol and the alcohol concentration of the pulmonary blood circulation (Dubowski, 1991).

There is a range of breathalyser equipment available today and generally all manufacturers will provide detailed information on their reliability. Drager Australia Pty Ltd is one company that manufactures a range of breathalyser equipment.

Providing information on blood alcohol levels provides important feed back to the client. If there is no direct access to breathalyser equipment or an estimate of a previous blood alcohol concentration is required, there are both computer programs and tables available that enable an estimation to be made. For example, there are tables provided in the Comprehensive Drinkers Profile which give the approximate blood alcohol concentration reached after three, four and five hours of drinking by body weight for women and men (Miller and Marlatt, 1984). More recently, Professor B. Miller has produced a computer program called BACCUS which calculates blood alcohol concentration for a specified time period. This is available from the University of New Mexico, Albuquerque, New Mexico 87131-1161, USA.

Liver Function Tests (LFT)

Excessive alcohol intake may produce a number of physical complications (see Saunders, 1993 for a review). Laboratory tests can detect abnormalities in body chemistry that have been caused by heavy drinking. One organ that is particularly susceptible to the effects of alcohol is the liver and a range of laboratory tests are available that provide information on the overall impact of alcohol on the body. However, it is important to note that tests of liver function that are currently available are neither sensitive nor specific to alcohol abuse (Chan, 1991).

Gamma-Glutamyl Transferase (GGT)

Gamma-glutamyl transferase (GGT) is an enzyme found in liver, blood and brain. It is a non specific indicator of liver disease. It has been reported to be elevated in between 60–80% of "alcoholics" (Lancet, 1980). GGTs tend to be raised before either AST or ALT. It is one of the standard laboratory liver function tests.

Aspartate aminotransferase (AST/SGOT) and Alanine aminotransferase (ALT/SGPT)

These enzymes also reflect the overall health of the liver and can be routinely obtained using standard laboratory procedures. However, like GGT, elevation in one of these measures alone is not necessarily due to excessive alcohol intake.

Carbohydrate-deficient (CDT)

Unlike GGT, AST and ALT, elevated levels of CDT are related specifically to the presence of metabolism of alcohol and are dependent upon the amount of alcohol consumed. Further, CDT levels return to normal after a period of abstinence (Stifler, 1991).

Reliability and validity

It is important to note that many heavy drinkers have normal LFT results and that many non drinkers may have elevated levels on biochemical tests that are routinely used to assess impact of alcohol. As noted by Stifler (1991) with the exception of carbohydrate-deficient transferin, the markers available have two drawbacks: either they are indicators of liver disease which may or may not be related to alcohol use or they lack sensitivity in detecting hazardous alcohol use.

CDT is dependent on ethanol or its metabolism and appears in serum after high alcohol intake and it is unrelated to other forms of liver disease. Unlike the biochemical markers discussed above, raised levels of CDT have been shown to have high sensitivity (proportion of excessive drinkers with an abnormal test result) and specificity (proportion of nonexcessive drinkers with normal results). For example, in studies using quantitative michrochromatic methods, sensitivities of 81–94% and specificities of 91–100% have been reported for current alcohol intake at definite risk levels (>60 g/day; Stifler, 1991).

Nicotine

Overview

The morbidity and mortality associated with tobacco smoking and the attending economic costs associated with these has lead to a major international public health campaign aimed at reducing the numbers of people who smoke tobacco. Between one third and one quarter of Australians smoke. While smoking rates have decreased over the 1970's and 1980's by about 10% (Mattick and Baillie, 1992), there is a continuing emphasis on assisting smokers to give up and dissuading non smokers from starting. The most time efficient and economical way to assess smoking is to ask an individual if he/she smokes. As 90% of smokers are nicotine dependent (Gust et al., 1986) an affirmative reply is most likely to indicate nicotine dependence.

Measurement of the severity of nicotine dependence can be accomplished by the administration of the Revised Fagerstrom Tolerance Questionnaire (RTQ; Tate and Schmidt, 1993). The other instrument which includes a measure of nicotine dependence is the Smokers Motivation Questionnaire (Russell, Peto and Patel, 1974). While this instrument has been widely used in the research literature it is more time consuming to complete and score. For most clinical settings, completion of the RTQ will provide a sufficiently reliable measure of severity of nicotine dependence.

Biochemical measures of nicotine exposure can be a useful clinical tool. Expired air carbon monoxide monitoring is the most economical method. Although measuring either plasma or saliva cotinine levels is more accurate, they require specialist laboratory analysis, and therefore the former is the recommended biochemical measure.

Measures used to determine nicotine use

Quantity and Frequency Methods

Summary

Quantity and frequency of cigarette smoking is best ascertained by asking the client if they smoke and to provide an estimate of number of cigarettes smoked per day. If more detailed information is required the client can be asked to monitor his/her smoking over a period of a week.

Ninety per cent of individuals who smoke cigarettes are nicotine dependent (Gust, Hughes and Pechacek, 1986). Therefore, asking a client if he/she smokes will in almost all cases indicate that they are dependent on nicotine. Obtaining an estimate of the number of cigarettes per day is the most time efficient method used to obtain a quantity and frequency estimate.

Reliability and validity

Reliability can be improved if the client is required to self monitor their cigarette use. It is more accurate if a client is required to record the time at which each cigarette is smoked (Frederiksen, Epstein and Kosevsky, 1975) although it is also important to note that self-monitoring alone is likely to produce a decrease in consumption, particularly if the client is motivated to cut down or stop.

Measurement

A weekly diary may be used to monitor the time at which a cigarette was smoked. However, more detailed information may be considered helpful. Additional information, e.g. record of the time the cigarette was smoked, mood state at the time and need for a cigarette, are often recorded.

Expired Air Carbon Monoxide

Summary

The most convenient and economical measure of nicotine intake is expired air carbon monoxide (CO) monitoring. It is most accurate if a reading is taken later in the day when nicotine levels tend to plateau. A cut-off point of 8 ppm correctly identifies 66–97 % of smokers; 87% if atypical smokers are excluded.

Expired Air Carbon Monoxide (CO)

CO is a combustion byproduct of smoking and is absorbed into the blood stream. It has a relatively short half life of 4 to 5 hours, therefore, the most accurate readings of CO are taken towards the end of the day. CO can be measured in exhaled air with a carbon monoxide monitor.

Reliability and validity

CO levels are positively correlated with the number of self reported cigarettes smoked per day. CO levels also increase with the number of cigarettes smoked throughout the day although a plateau is reached 9 hours after the commencement of smoking.

The sensitivity of CO for identifying active smokers is maximal if a cut off point of 8 ppm is adopted; this will correctly identify between 66% to 97% of smokers and 96% to 99% of non smokers. If atypical smokers are excluded, i.e. pipe smokers, those who smoke less than 10 cigarettes a day, noninhalers) then the bottom figure for sensitivity increases from 66% to 87%.

Suitability for special populations

Expired air carbon monoxide monitoring is a non invasive procedure producing an immediate result which can be explained in a straightforward manner by the clinician. It is a particularly suitable measure for a range of cultural groups and has been used successfully in number of trials involving the delivery of smoking cessation programs to diverse groups.

Assessment of severity of nicotine dependence

Revised Fagerstrom Tolerance Questionnaire (RTQ)

Key reference

Tate, J and Schmidt, J.M. (1993) A proposed revision of the Fagerstrom Tolerance Questionnaire. *Addictive Behaviors*, **18**, 135–143.

Summary

The Revised Fagerstrom Tolerance Questionnaire (RTQ) is a ten item questionnaire designed to measure the severity of nicotine dependence. It has good test-retest reliability and appears to be a valid measure of severity of nicotine dependence as it correlates significantly with expired air CO. Further studies investigating the relationship with cotinine are underway. However, it is unclear whether the RTQ offers anything over and above the Heavy Smoking Index (HSI). The latter measure was found to be as good a predictor of outcome as the predecessors of the RTQ.

Description and development of the Revised Fagerstrom Tolerance Questionnaire (RTQ)

This measure of severity of nicotine dependence has undergone considerable revision since the original Fagerstrom Tolerance Questionnaire (TQ; Fagerstrom, 1978) and the more recent Test of Nicotine Dependence, (FTND; Heatherton, Kozlowski, Frecker and Fagerstrom, 1991). The present version reviewed in this report is the Revised Fagerstrom Tolerance Questionnaire (RTQ; Tate and Schmidt, 1993).

The RTQ is a 10-item self-report measure assessing the severity of nicotine dependence. The items cover number of cigarettes smoked, smoking topography, smoking to relieve nicotine withdrawal and difficulty in refraining from smoking. All items are scored on a 5-point scale from 1 to 5.

The RTQ was administered to four groups of smokers; those involved in a smoking cessation program (n = 51), regular smokers (n = 46), outpatient substance abusers (n = 182) and inpatient substance abusers (48). The goals of the study were to provide test-retest reliability data on the RTQ, determine whether the RTQ represented a single common factor using principal components analysis and report preliminary validity data on the RTQ.

Reliability an validity

The RTQ was found to have greater internal consistency (coefficient *alpha* = .83) than previously reported for either the FTQ or the FTND. Test-retest reliability was assessed by

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REVISED FAGERSTROM TOLERANCE QUESTIONNAIRE

1. How many cigarettes a day do you smoke? (circle one)

| 10 or less | 11–15 | 16–20 | 21–25 | 26 or more |

2. How deeply do you inhale? (circle one)

| 1 | 2 | 3 | 4 | 5 |
| I do not inhale | | Moderately | | Very Deeply |

3. How often do you smoke more in the morning than the rest of the day? (circle one)

| 1 | 2 | 3 | 4 | 5 |
| Never | | About half the time | | Always |

4. How often do you smoke your first cigarette of the day within 30 minutes of waking? (circle one)

| 1 | 2 | 3 | 4 | 5 |
| Never | | About half the time | | Always |

5. How difficult would it be for you to give up your usual first cigarette of the day? (circle one)

| 1 | 2 | 3 | 4 | 5 |
| Not Difficult | | Somewhat difficult | | Extremely Difficult |

6. How difficult do you find it to refrain from smoking in places where it is forbidden (e.g., in church, at the library, cinema, etc.)?
(circle one)

| 1 | 2 | 3 | 4 | 5 |
| Not Difficult | | Somewhat difficult | | Extremely Difficult |

7. How often do you smoke when you are sick with a cold, the flu, or are so ill that you are in bed most of the day? (circle one)

| 1 | 2 | 3 | 4 | 5 |
| Never | | About half the time | | Always |

8. On average, about how much of each cigarette do you smoke? (circle one)

| 1 | 2 | 3 | 4 | 5 |
| 1/2 or less | 1/2 | 2/3 | 3/4 | ALL |

9. On average, how often do you inhale? (circle one)

| 1 | 2 | 3 | 4 | 5 |
| Never | | About half the time | | Always |

10. On average, how often do you hold cigarette smoke in your lungs for a moment or two before exhaling?
(circle one)

| 1 | 2 | 3 | 4 | 5 |
| Never | | About half the time | | Always |

Scoring: All items are scored on a 5-point scale. For items 1 and 8, the five anchors are assigned numbers (e.g. 26 or more is assigned a score of 5 and 1/2 or less is assigned a score of 1.

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repeated self completion within an interval of one to one and a half months. Pearson product-moment correlations yielded high test-retest reliability coefficients; higher for total scores than for individual items (Tate and Schmidt, 1993). The total score obtained on the RTQ is more stable across time than any one particular item. In addition to a high degree of internal consistency, factor analytic procedures produced a single common factor indicating that the RTQ measures a unidimensional underlying construct. A subsample completed both the RTQ, TQ and provided expired air CO samples. Generally, correlations between CO and the RTQ scores were greater than between CO and TQ scores thus demonstrating preliminary construct validity for the RTQ.

The relationship between nicotine dependence and success in smoking cessation treatments is not clearly established. Kozlowski et al. (1994) found that scores on the FTQ, FTND and the Heavy Smoking Index (HSI) were able to predict smoking cessation to only a small degree. Further, no one of these measures was clearly superior, leading the authors to conclude that the shortest two item HSI was more practical in clinical and research settings.

Suitability for special populations

No outstanding issues.

Administration and scoring

All instruments are in the public domain and may be used without cost but with due acknowledgment of the source.

Biochemical measures of nicotine use

Nicotine and Cotinine

Nicotine and its metabolic by-product, cotinine, can be detected in saliva, urine and blood. Nicotine metabolism varies considerably between individuals. Consequently, the most accurate index of nicotine intake involves measuring both nicotine blood concentrations and elimination rate. It is recommended that nicotine plasma levels are measured towards the end of the day, as plasma levels tend to plateau after 6–8 hours of smoking.

Cotinine has a longer half-life than nicotine (19–30 hours compared to 1–2 hours) and therefore it is generally a preferred measure of nicotine exposure. It is a highly specific measure of nicotine use; a mean salivary cotinine value of 310 ng/ml is the typical value for smokers compared to a 1.7 ng/ml in nonsmokers (Jarvis et al., 1984). Cotinine values also correlate with the number of cigarettes smoked per day (Benowitz et al., 1983).

Salivary cotinine is the most accurate index of smoking, however, it is expensive and laboratory analysis complicated. If a measure other than self report is required, expired air carbon monoxide reading is the biochemical measure of choice.

Drug use other than alcohol and tobacco

Overview

The following section reviews instruments and measures used to screen for, or to diagnose problematic drug use other than alcohol and tobacco. A wide range of substances such as psychomotor stimulants, opiates, benzodiazepines, solvents and cannabis are included in this section. Despite the major pharmacological differences between these substances, they are all considered to be substances in which regular use is associated with the development of dependence and are classified as such in the DSM-IV.

Unlike alcohol and tobacco, the prevalence of other illicit drug use is relatively low in the general community. Given the relatively low incidence of illicit drug use, widespread routine screening in the manner suggested for alcohol is not indicated. However, the high mortality and morbidity that is associated with illicit drug use emphasises the need for effective identification of those who are using these drugs and the implementation of harm minimisation practises.

At present there are relatively few standardised measures of (other) drug use. The Drug Abuse Screening Test (DAST), reviewed in detail in the present report, is a well validated screening measure. Other measures that have been developed and are well accepted include the Personal Experience Screening Questionnaire (PESQ; Winters, 1994) and the Drug Use Screening Inventory (DUSI; Tarter, 1990). The PESQ is a 40-item questionnaire which provides three subscores: problem severity and frequency, defensiveness and psychosocial indicators, and a summary of drug use. The DUSI is a 149-item instrument covering 10 domains: substance use behaviour, behaviour problems, health status, psychiatric disorder, social skills, family system, school work, peer relationship, leisure and recreation. It takes from 20–40 minutes to complete and has been used successfully with clients as young as 11 years. As with the DAST, these instruments were developed in North America, particularly for use with youth, however, they are extremely comprehensive and

are more appropriate for assessment rather than as screening instruments.

Determining the quantity and frequency of illicit drug use poses greater problems than either alcohol or tobacco as it is far easier to arrive at reasonably accurate estimates of total alcohol and tobacco consumption than it is with many other drugs such as heroin, cocaine or amphetamine as purity and route of administration, amongst other factors, influence drug availability. Darke and colleagues (Darke et al., 1991) have resolved this problem by development of a method of assessing drug use without reference to actual quantity consumed, focusing instead on the three most recent occasions of drug use. The Addiction Severity Index (McLellan, et al., 1980) also provides an indication of overall severity of dependence by incorporating into the Index the number of drug use days in the preceding 30 days.

Following the extension of the dependence syndrome concept to drugs other than alcohol (Edwards, Arif and Hodgson, 1981), there have been three instruments developed founded on the dependence syndrome; the Severity of Opiate Dependence Questionnaire (SODQ; Sutherland et al., 1986), the Severity of Amphetamine Dependence Questionnaire (SAmDQ; Churchill et al., 1993) and the Leeds Dependence Questionnaire (LDQ; Raistrick et al. 1994). The Severity of Dependence Scale (SDS; Gossop et al., 1995) originally included in the SODQ, has been used as a separate instrument and may be conceptualised as a measure of subjective dependence. All these measures are included in the present review.

Biochemical measures used to detect drug use are urine and blood analysis and, more recently, hair analysis. These measures are reliable, however the detection of substances depends both on the amount of drug administered and on the pharmacokinetics of the individual substance. Hair analysis requires specialist laboratory procedures and it is not yet routinely available in Australia.

Measures used to screen for other drug use

Drug Abuse Screening Test (DAST)

Key reference

Gavin, D.R., Ross, H.E. and Skinner, H.A. (1989). Diagnostic validity of the Drug Abuse Screening Test in the assessment of DSM-III drug disorders. *British Journal of Addiction*, **84,** 301–307.

Summary

The DAST is a 20-item screening instrument designed to identify individuals who have a drug abuse problem (excluding alcohol). It includes some features of the dependence syndrome such as inability to abstain, withdrawal symptoms and a range of social and emotional problems associated with drug misuse. It is based on the MAST and may have limited use in an Australian context, particularly with women and Indigenous Australians.

Description and Development of the Drug Abuse Screening Test (DAST)

The DAST was developed to provide a brief instrument for clinical screening and treatment evaluation research. It consists of 20 items that cover the use of drugs, physical and medical complications, emotional and personal problems arising from drug use in the preceding 12 months. Respondents are required to answer either YES or NO to each of the items. The original 28-item DAST was modelled on the MAST and the items parallel those contained on that instrument (see Skinner, (1982) for a description). However, as the 20 item and 28 item versions are highly correlated (Skinner, 1982), the 20 item version is now routinely used.

Reliability and validity

The DAST has been shown to have a high degree of internal consistency (coefficient *alpha* = .92) and factor analysis of the DAST item

intercorrelations have been interpreted as providing evidence that it measures a single dominant dimension of problems associated with drug abuse (Skinner, 1982). In order to determine whether answers on the DAST were likely to be influenced by factors like concern about reporting socially unacceptable behaviour, the relationship between DAST scores and measures of social desirability and denial was investigated. There was a small positive correlation between these measures that was not statistically significant (Skinner, 1982).

Scores on the DAST are highly correlated with the frequency of use for a range of drugs including cannabis, barbiturates, amphetamine and opiates other than heroin (Skinner and Goldberg, 1986).

The sensitivity and specificity of the DAST was evaluated by Gavin et al. (1989). Using the Diagnostic Interview Schedule, subjects were classified according to the presence or absence of any current DSM-III drug disorder (excluding alcohol and tobacco). The DAST attained 85% overall accuracy in identifying subjects who met DSM-III diagnosis; maximum sensitivity (96%) was obtained with a cut-off score of 6 to 7. On the basis of Receiver Operating Characteristics analyses, the authors recommend that a score of 5 to 6 be used as the cut-off score.

Suitability for special populations

The DAST only appears to have been used in North America, there is no information regarding its applicability to specific cultural groups that the authors are aware of. The relatively high accuracy in using a cut-off score on the DAST and DSM-III diagnosis of drug abuse/dependence however, indicates that the DAST may be an appropriate screening instrument in populations in which the DSM-III diagnostic system also produces reliable and valid diagnoses.

We suggest that the limitations with regard to the use of the MAST with women are also applicable to the DAST. The questions on social and occupational functioning are more relevant to employed men than to women whose primary occupation is home duties. It is likely that few women would answer in the affirmative to items regarding use of violence. However, due to the nature of the lifestyle associated with illicit drug use the other items relating to arrest and illegal activities may be more relevant to female drug

users. As with the MAST, there are no questions that focus specifically on children or on home duties.

The term "abuse" is consistently used in the DAST rather than the terms "drug use" or "misuse". Whether this is likely to influence accurate completion of the DAST is a moot point;

however, we draw attention to this issue and, in the absence of empirical information, leave it to individual clinicians to decide on whether the wording should be altered. Item 17 refers to withdrawal symptoms as "sick" in parentheses. It is possible that this term could be interpreted to mean nauseous.

DRUG ABUSE SCREENING TEST (DAST)

INSTRUCTIONS: The following questions concern information about your potential involvement with drugs not including alcoholic beverages during the past 12 months. Carefully read each statement and decide if your answer is "Yes" or "No". Then circle the appropriate response beside the questions.

In the statements "drug abuse" refers to (1) the use of prescribed or over the counter drugs in excess of the directions and (2) any non-medical use of drugs. The various classes of drugs may include: cannabis (e.g. marijuana, hash), solvents, tranquillisers (e.g. Valium) barbiturates, cocaine, stimulants (e.g. speed), hallucinogens (e.g. LSD) or narcotics (e.g. heroin). Remember that the questions do no include alcoholic beverages. Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

1.	Have you used drugs other than those required for medical reasons?	yes	no
2.	Have you abused prescription drugs?	yes	no
3.	Do you abuse more than one drug at a time?	yes	no
4.	Can you always get through the week without using drugs?	yes	no
5.	Are you always able to stop using drugs when you want to?	yes	no
6.	Have you had "blackouts" or "flashbacks" as a result of drug use?	yes	no
7.	Do you ever feel bad or guilty about your drug use?	yes	no
8.	Does your spouse (or parents) ever complain about your involvement with drugs?	yes	no
9.	Has drug abuse created problems between you and your spouse or your parents?	yes	no
10.	Have you lost friends because of your use of drugs?	yes	no
11.	Have you neglected your family because of your use of drugs?	yes	no
12.	Have you been in trouble at work because of drug abuse?	yes	no
13.	Have you lost a job because of drug abuse?	yes	no
14.	Have you gotten into fights when under the influence on drugs?	yes	no
15.	Have you engaged in illegal activities in order to obtain drugs?	yes	no
16.	Have you been arrested for possession of illegal drugs?	yes	no
17.	Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	yes	no
18.	Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsion, bleeding, etc?)	yes	no
19.	Have you gone to anyone for help for a drug problem?	yes	no
20.	Have you been involved in a treatment program specifically related to drug use?	yes	no

To the authors' knowledge, the DAST has not been used with Aboriginal or Torres Strait Islander people and in the absence of consultation with Indigenous peoples the appropriateness of this instrument remains unknown.

Administration and scoring

The DAST takes less than five minutes to complete and is scored by adding the number of items indicating drug use problems. "No" responses to items 4 and 5 indicate problems with drug use so are scored 1. It can be administered without specific training.

Availability and cost

The DAST is reproduced below, and can be used with due acknowledgment of the authors.

More information on the DAST can be obtained from Dr Harvey Skinner, Addiction Research Foundation, 33 Russell St., Toronto, Canada, M5S 2S1.

Assessment of quantity and frequency of drug use

Opiate Treatment Index (OTI)

Key reference

Darke, S., Ward, J., Hall, W., Heather, N. and Wodak, A. (1991). The Opiate Treatment Index (OTI) Manual. Technical Report Number 11. National Drug and Alcohol Research Centre, Sydney, Australia

Summary

The Opiate Treatment Index (OTI) is a structured interview primarily developed to allow comparability between research findings. It consists of six independent outcome domains: drug use, HIV risk-taking behaviour, social functioning, criminality, health status and psychological adjustment as measured by the GHQ-28. It takes between 20–30 minutes to administer. While it was not intended to be an alternative to a clinical assessment, it is a useful clinical tool providing quantitative information from which to evaluate a treatment program.

Description and development of the Opiate Treatment Index (OTI)

The Opiate Treatment Index (OTI) is a structured interview primarily developed to provide a comprehensive measure that can be used to determine the relative effectiveness of treatments or interventions in the substance misuse field. The authors suggest that use of a comprehensive instrument that objectively measures six independent outcome areas will enable comparisons to be made between different research studies. The OTI was developed at the National Drug and Alcohol Research Centre, Sydney.

The six independent outcome domains that make up the OTI have previously been demonstrated to be variables that change following a treatment intervention. They consist of: Drug Use, HIV Risk-taking behaviour, Social Functioning, Criminality, Health Status and Psychological Functioning. Psychological Functioning is assessed using the General Health Questionnaire (28 item version; see section IV for a separate discussion on the GHQ). The Drug Use domain differs from many typical drug use scales (e.g. Addiction Severity Index) in that it focuses on drug use on only the three most recent occasions. For example when answering the OTI in relation to heroin use, subjects are asked:

(1) On what day did you last use heroin?

(2) How many hits did you have on that day?

(3) On which day before that did you use heroin?

(4) How many hits did you have on that day?

(5) And when was the day before that that you used heroin?

The following example is taken from the Opiate Treatment Index Manual (p. 6).

Last use?	Friday
How much	4 hits (q1)
Time before	Thursday (or 1 day before) (t1 = 1 day)
How much	4 hits (q2)
Time before that?	Wednesday (or 1 day before)(t2 = 1 day)

Estimates of recent consumption are calculated by adding the consumption on the two use days and

dividing by the intervals between the use days. An estimate of recent consumption is obtained by the formula:

$$Q = \frac{q1 + q2}{t1 + t2}$$

Using the formula above the Quantity/Frequency estimate is calculated as follows:

$$Q = \frac{4 + 4}{1 + 1} = 4$$

The manual provides a guideline to the interpretation of the Quantity/Frequency estimate obtained.

The HIV Risk-taking Behaviour scale (HRBS) consists of 11 items focusing on injecting practises and sexual behaviour that places individuals at risk of either contracting or spreading Human Immunodeficiency Virus (HIV). Addition of all items scored on a 6-point scale (0–5) provides a single overall score; the higher the score the greater the risk of contracting or spreading HIV. The Social Functioning scale consists of items reflecting overall social stability and social support. It also incorporates in the overall score a measure of involvement in the drug subculture, a component that is not normally included in more general measures of social support and social functioning. The Criminality scale assesses involvement in recent criminal activity in four areas: property crime, drug dealing, fraud and crimes involving violence. Each of these categories are mutually exclusive. Finally, Health Status provides an indication of subjects' current state of health, particularly in relation to illnesses or medical problems associated with drug users' lifestyle. The interviewer reads out a list of common health problems and the respondent indicates whether they are currently suffering from this problem. The overall health score is obtained by summation of "Yes" responses.

Reliability and validity

As the OTI is a recently developed measure, information on the psychometric properties of the instrument is limited. However, to date, it would appear that it is reliable, demonstrating high test-retest reliability on all of the scales (Darke, Hall, Wodak, Heather and Ward, 1992).

The validity of the OTI was examined in two ways. The overall correlations between each of the subscales were compared to relevant subscales on the Addiction Severity Index (ASI). All scales were significantly correlated with the ASI counterpart except for Legal (ASI) and OTI Crime scale. The authors suggest this disparity reflects an emphasis on conviction for crimes in the ASI compared to crimes committed on the OTI (Darke et al., 1992). Scores on individual scales were also compared with other relevant measures. For example, the scores on the Health Status scale were significantly correlated with the number of signs and symptoms detected in independent medical examinations and drug use scores were consistent with urinalysis results.

Suitability for special populations

The OTI has been successfully used with minor changes in "drug language" in the United Kingdom with London drug users (Adelekan et al., *in press*). Most recently, it has been translated into Vietnamese and used with Vietnamese heroin users in the outer South-western suburbs of Sydney (Wendy Swift, NDARC, personal communication).

The OTI is easily understood by individuals proficient in English.

Administration and scoring

The manual is clearly written and the scoring system for each of the scales well described. The OTI can be administered in about 30 minutes. While the instrument was designed primarily as a research tool it can be used in a clinical setting. It is not intended to replace a clinical history taking but it is a useful adjunct, providing quantitative information that can be used to evaluate clinical progress. In particular the HRBS scale and the Health Scale provide a useful structure for obtaining information about risk behaviour and health status.

Availability and cost

The OTI is available from the National Drug and Alcohol Research Centre, University of New South Wales, Sydney, NSW, 2052 at a cost of $10.00.

Assessment of severity of dependence on drugs

Severity of Opiate Dependence Scale (SODQ)

Key reference

Sutherland, G., Edwards, G., Taylor, C., Phillips, G., Gossop, M. and Brady, R. (1986) the measurement of opiate dependence, *British Journal of Addiction,* **81**, 479–484.

Summary

The SODQ is a five-section questionnaire designed to assess severity of opiate dependence. The SODQ contains items addressing the demographics of drug consumption, as well as items related to four aspects of the dependence syndrome: physical withdrawal, affective withdrawal, withdrawal relief drug-taking and rapidity of reinstatement after abstinence. Single items also reflect narrowing of behavioural repertoire and tolerance to opiates. Items have a multiple-choice response format. Whilst the questionnaire has been validated on samples of British and Australian opiate users, a cut-off score indicative of dependence is yet to be devised.

Description and development of the SODQ

Following the extension of the dependence syndrome concept to drugs other than alcohol (Edwards, Arif and Hodgson, 1981), Sutherland and colleagues (1986) drew attention to the need for a conceptually founded instrument to measure the severity of opiate dependence on a continuum. This would further exploration of the nature of opiate dependence, its natural history, and the matching of treatment to client needs. With such aims in mind, the SODQ was developed through a series of pilot stages as a parallel instrument to the SADQ. The SODQ consists of five main sections: quantity and pattern of opiate use; physical symptoms of withdrawal; affective symptoms of withdrawal including craving; withdrawal relief drug-taking; and rapidity of reinstatement of withdrawal symptoms after a period of abstinence. Single items also relate to the notions of tolerance and narrowing of drug use repertoire.

The SODQ was completed by 100 consecutive outpatients applying for treatment for opiate dependence in New York. Factor analyses were undertaken on each of the four main sections of the SODQ. A single factor emerged that accounted for a satisfactory proportion of the variance in responses. Moreover, Cronbach's coefficient a*lpha* indicated acceptable internal consistency for each section. Factor analyses performed on items from all four main sections of SODQ, found a single factor emerged which accounted for 39% of the variance, indicating that the structure of the questionnaire is dominated by a single underlying construct. Very high correlations (>.95) between section scores and factor scores justify the simple addition of section scores in order to form an overall SODQ score. Some preliminary evidence for construct validity was provided by the significant correlations between SODQ score and number of opiate injections per day, and with subjective feelings of dependence.

Reliability and validity of the SODQ

The original application of the SODQ demonstrated preliminary evidence for the internal consistency and the construct validity of the instrument. The SODQ has been used with British (Phillips, Gossop, Edwards, Sutherland, Taylor and Strang, 1987), Australian (Burgess, Stipp, Pead and Holman, 1989) and New York opiate users (Sutherland, Edwards, Taylor, Phillips and Gossop, 1988). Structural analyses of the questionnaire in these validation studies found results strikingly similar to those of Sutherland et al., (1986), with satisfactory proportions of variance in responses accounted for by factor analyses, and acceptable levels of internal consistency. Construct validity was again demonstrated through the significant correlations between SODQ scores and other measures of opiate use, including subjective sense of dependence and some items of the Psychoactive Substance Dependence and Abuse section of the Structured Clinical Interview for DSM-III-R (Spitzer, Williams and Gibbon, 1986).

Special populations

Recognition among clinicians that amphetamine, a drug historically considered to be relatively safe

SEVERITY OF OPIATE DEPENDENCE SCALE (SODQ)

NAME: SEX: M/F   DATE OF BIRTH: ___/___/___

AGE:

First of all, we would like you to recall a recent month when you were using opiates heavily in a way which, for you, was fairly typical of a heavy use period. Please fill in the month and the year.

Month:._____Year: _____

Answer every question by circling one response only

1. On waking, and before my first dose of opiates:

(a) My body aches or feels stiff

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(b) I get stomach cramps

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(c) I feel sick

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(d) I notice my heart pounding

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(e) I have hot and cold flushes

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(f) I feel miserable or depressed

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(g) I feel tense or panicky

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(h) I feel irritable or angry

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(i) I feel restless and unable to relax

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(j) I have a strong craving

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

2. Please complete all sections (a–f) of this question:

(a) I try to save some opiates to use on waking

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(b) I like to take my first dose of opiates within two hour of waking up

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(c) In the morning, I use opiates to stop myself feeling sick

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(d) The first thing I think of doing when I wake up is to take some opiates

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(e) When I wake up I take opiates to stop myself aching or feeling stiff

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(f) The first thing I do after I wake up is to take some opiates

      NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

SODQ (cont)

3. Please think of your opiate use during a typical period of drug taking for these questions:

(a) Did you think your opiate use was out of control

    NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(b) Did the prospect of missing a fix (or dose) make you very anxious or worried?

    NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(c) Did you worry about your opiate use?

        NOT AT ALL   A LITTLE   QUITE A LOT   A GREAT DEAL

(d) Did you wish you could stop?

    NEVER or ALMOST NEVER   SOMETIMES   OFTEN   NEARLY ALWAYS

(e) How difficult would you find it to stop or go without

        IMPOSSIBLE   VERY DIFFICULT   QUITE DIFFICULT   NOT DIFFICULT

---

and non-addictive, could induce dependence led to the adaption of the SADQ to measure severity of amphetamine dependence. The adaptation involved changing all references to opiates to amphetamine, and including some additional items that assessed tiredness, depression and lethargy, common features of amphetamine withdrawal. This adapted questionnaire was called the Severity of Amphetamine Dependence Questionnaire (SAmDQ; Churchill, Burgess, Pead and Gill, 1993). It was administered to 101 consecutive patients seeking treatment for amphetamine dependence. Structural analyses of the questionnaire revealed results that were very similar to those obtained by Sutherland et al., (1986) for the SODQ, and indicated that the questionnaire has acceptable internal consistency and unidimensionality. Moreover, construct validity was demonstrated through the significant relationships between total SAmDQ scores and other measures of amphetamine use. This questionnaire has since been applied to a sample of amphetamine users who were dependent by DSM-III-R criteria as assessed by the CIDI, and psychometric analyses and external validation measures indicated that the SAmDQ is able to discriminate between different severities of amphetamine dependence (Topp and Mattick, submitted). The similarities between the SODQ and the SAmDQ indicate that the dependence syndromes for opiates and amphetamines may be

more alike than was previously thought (Topp, Mattick and Lovibond, 1995).

Administration and scoring

Both the SODQ and the SAmDQ were designed for self-completion; however, they can also be administered by the researcher. Items are scored on four-point scale ranging from "never or almost never" (scored 0) through "sometimes" (1), "often" (2), to "always or nearly always" (3). Total scores are calculated by summing together scores from the withdrawal sections. The reinstatement section has not been included in these total scores due to some conceptual and practical difficulties with this section.

Availability and cost

Both the SODQ and the SAmDQ have been used in research settings only. It is considered that such instruments are more suitable for research than clinical applications. They are both in the public domain and the SODQ is reproduced below. They may be used without cost, but with due acknowledgment of the source.

Leeds Dependence Questionnaire (LDQ)

Key reference

Raistrick, D., Bradshaw, J., Tober, G., Weiner, J., Allison, J. and Healey, C. (1994). Development of the Leeds Dependence Questionnaire (LDQ): A questionnaire to measure alcohol and opiate dependence in the context of a treatment evaluation package, *Addiction,* **89**, 563–572.

Summary

The Leeds Dependence Questionnaire (LDQ) was developed as part of a treatment evaluation package. It is a 10 item, multiple choice self completion questionnaire designed to measure dependence upon a variety of substances, and has been applied to users of alcohol and opiates. The LDQ was designed to be sensitive to change over time and to the range from mild to severe dependence. Factor analyses of the questionnaire have indicated that it measures a unidimensional concept, and test-retest reliability, as well as various measures of concurrent, discriminant and convergent validity, have been established. No cut-off score indicative of dependence has been established.

Description and development of the LDQ

The Leeds Dependence Questionnaire (LDQ) was developed to provide a measure of the severity of dependence which was not derived entirely from measures of consumption and substance specific withdrawal symptoms but incorporated broader notions of pscyhological dependence. Dependence may be viewed as a psychological phenomenon, manifested in substance users' cognitive and behavioural responses to a variety of conditioned cues, be they physiological, pharmacological, social or psychological. In the LDQ, items address the way in which drug effects are maximised, the readministration of a drug when its effects are beginning to wear off, and the importance or primacy of the drug's effect. Raistrick et al. (1994) argue that the questionnaire is more sensitive to individuals who are not physically dependent upon a substance but who experience a range of psychological symptoms such as craving, compulsion to use and narrowing of behavioural repertoire.

The LDQ was developed through a series of eight pilot stages, each involving between five and 50 subjects. At each stage of the pilots, items were checked for their comprehensibility and their emotional neutrality. A 10 item, multiple choice response questionnaire emerged with the following items: preoccupation, salience, compulsion to start use, compulsion to continue use, planning to procure and use the drug, maximisation of drug effect, narrowing of repertoire, the primacy of drug effect, the constancy of drug-induced states and cognitive set. The final version of the questionnaire was administered to three samples of alcohol users and a sample of opiate users. A principal components analysis suggested that the questionnaire taps a unidimensional concept, and Cronbach's coefficient a*lpha* indicated very high (.94) internal consistency.

Reliability and validity

Raistrick et al. (1994) were commendably thorough in their attempts to assess the reliability and validity of the LDQ. As mentioned, a principal components analysis was undertaken on the items, and a single factor emerged that accounted for 64% of the variance in responses. Internal consistency was confirmed with a high Cronbach's coefficient *alpha*, as well as corrected item-total correlations (a measure of the correlation between each question score and the sum of the remaining scores). Test-retest reliability on a subsample (n=33) of both alcohol and opiate users was .95.

Raistrick et al. (1994) also assessed the concurrent, discriminant and convergent validity of the LDQ. The LDQ was significantly correlated with the SODQ and the SADQ. Concurrent validity was also demonstrated through the significant differences in LDQ scores of three different samples of drinkers (alcoholic inpatients had higher scores than college students, who had higher scores than attenders at a G.P. clinic). Discriminant validity was shown in the lack of differences in LDQ scores on the basis of age or gender. Finally, given the well-established relationship between dependence and psychological morbidity, convergent validity was demonstrated in the significant correlations between LDQ scores and GHQ scores.

THE LEEDS DEPENDENCE QUESTIONNAIRE—LDQ

In answering this questionnaire:

• think about the last week

• think about your main substance or substance group, please specify ....

• tick the answer that's most appropriate to you

| | Never | Sometimes | Often | Nearly Always |

1. Do you find yourself thinking about when you will next be able to have another drink or take drugs?

2. Is drinking or taking drugs more important than anything else you might do during the day?

3. Do you feel your need for drink or drugs is too strong to control?

4. Do you plan your days around drinking or taking drugs?

5. Do you drink or take drugs in a particular way in order to increase the effect it gives you?

6. Do you take drink or drugs morning, afternoon and evening?

7. Do you feel you have to carry on drinking or taking drugs once you have started?

8. Is getting the effect you want more important than the particular drink or drug you use?

9. Do you want to take more drink or drugs when the effect starts to wear off?

10. Do you find it difficult to cope with life without drink or drugs?

Administration and scoring

The LDQ is a self-completion questionnaire. Respondents are instructed to think about their substance use in the last week when answering the questions, and to tick the relevant response. Each of the items is scored on a "never" (0), "sometimes" (1), "often" (2) and "nearly always" (3) scale, yielding a maximum score of 30. The authors suggest the LDQ could be used in clinical or research settings, and describe it is "brief and user-friendly" (Raistrick et al. 1994, p.571).

Availability and cost

The LDQ is in the public domain, and is reproduced below. It may be used without cost, but with due acknowledgment of the source.

Severity of Dependence Scale (SDS)

Key reference

Gossop, M., Darke, S., Griffiths, P., Hando, J., Powis, B., Hall, W. and Strang, J. (1995) The severity of Dependence Scale (SDS): Psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. *Addiction*, **90**, 607–614.

Summary

The Severity of Dependence Scale (SDS) is a five-item questionnaire designed to provide a measure of dependence focused on impaired control of drug use, anxiety about use and difficulty in stopping. The SDS was originally included as the final section in the SODQ. The SDS appears to be a reliable measure of the dependence construct. It has been used in both Australia and South London. A translated version has been used with Vietnamese youth in South Western Sydney. Preliminary ROC analyses indicate a cut-off of 4 is indicative of dependence for amphetamine users.

Description of the Severity of Dependence Scale (SDS)

The SDS is a brief five-item scale which was developed to measure the degree of dependence on a variety of drugs. Unlike other measures of severity of dependence such as the SODQ and SAmDQ which include sections on withdrawal and tolerance, the SDS focuses only on the psychological aspects of dependence such as impaired control over drug use, anxiety about use and difficulty stopping.

The SDS was originally included as the final section in the SODQ. Later validation of the instrument occurred with a South London population of heroin users (n = 200) who were attending treatment on an outpatient basis (community drug team) or inpatient treatment. The most recent study involved a collaborative project between the National Addiction Centre (UK) and the National Drug and Alcohol Research Centre (Australia) in which the SDS was administered to the following samples of drug users: heroin and cocaine users in London, amphetamine users and methadone maintenance patients in Sydney.

Reliability and validity

The SDS would appear to be a reliable measure of the dependence construct. Factor analysis produced a single factor solution and scores on each item of the SDS was almost perfectly correlated with factor scores Each of the items also had high internal consistency (*alpha* values ranged from 0.8 to 0.9; Gossop et al., 1995).

The SDS also appears to have construct validity. In the original study of 200 heroin users, SDS scores were significantly correlated with (heroin) dose and with duration of use. Further, those subjects who had previously received treatment for their heroin problem scored significantly higher on all SDS items than those subjects who had never been in treatment. Severity of dependence was also influenced by route of drug administration with heroin "chasers" having significantly lower dependence scores than their injecting counterparts. ("Chasing the dragon" refers to a process in which heroin is heated on tin foil and the vaporised heroin inhaled by a tube, usually made from a rolled money note.)

SEVERITY OF DEPENDENCE SCALE

1. Did you ever think your use of (drug) was out of control?

Never or almost never	0
Sometimes	1
Often	2
Always or nearly always	3

2. Did the prospect of missing a shot/snort make you very anxious or worried?

Never or almost never	0
Sometimes	1
Often	2
Always or nearly always	3

3. How much did you worry about your use of (drug)?

Not at all	0
A little	1
Quite a lot	2
A great deal	3

4. Did you wish you could stop?

Never or almost never	0
Sometimes	1
Often	2
Always or nearly always	3

5. How difficult would you find it to stop or go without (drug)?

Not difficult	0
Quite difficult	1
Very difficult	2
Impossible	3

Suitability for special populations

The SDS has been used with a variety of drug users in South London and in Sydney's inner city areas and in the Western suburbs of Sydney. The wording of the SDS is straightforward and the concepts appear to be understood by a variety of drug users.

The SDS has been translated (and back translated) into Vietnamese as part of a study investigating route of administration in the western suburbs of Sydney. Although data

analysis is not yet completed the authors of the report are not aware of significant cultural problems (W. Swift, personal communication).

There are no gender issues in relation to the items of the SDS.

Administration and scoring

The SDS takes less than one minute to complete. The language used is straightforward and the scale is easily understood by drug users. Slight differences exist between the language used in the UK version and the Australian version. Each item is scored on a 4-point scale from 0–3. Addition of the five items produces a total score with higher scores indicating higher levels of dependence; maximum score obtainable is 15. Preliminary ROC analyses that calibrate the SDS against the CIDI, indicate that, for amphetamine users, a score of 4 or greater is indicative of dependence (Topp, Lovibond and Mattick, submitted for publication).

Availability and cost

The SDS is in the public domain and therefore may be used without cost but with due acknowledgment. A copy is provided below.

Biochemical measures of drug use

Urine analysis

Urine drug testing aims at detecting the presence or absence of certain drugs or drug metabolites in urine. However, urine drug testing cannot be used to determine dosage, time of drug administration or the extent of any drug effects in the subject (Blanke, 1986). In order to differentiate between recent drug use and continued excretion of the drug from previous (heavy and prolonged) use it is possible to perform a semi-quantitative analysis in which the concentration of the drug in urine is monitored over time. If the subject has ceased to use the drug, then the concentration of drug in their urine would be expected to decrease each time a urine sample is assayed. Increases or no change in concentration of drug in urine is consistent with continued use (Manno, 1986).

There a number of factors which influence whether a urine drug screen is positive or negative. The higher the dose the more likely that the drug will be detected. For example, a dose of 30 mg codeine might be detected for 1–6 hours after use by a particular method; a 60 mg dose may be detected

for 1–10 hours (Manno, 1986). The frequency of use is also an important factor influencing detection. As a general rule most drugs tend to accumulate in the body with regular use. Thus the more frequently a drug is used the more likely that it will be detected in a drug screen. Drugs are metabolised at different rates. Cocaine, for example, is eliminated from the body relatively rapidly and depending on the method used, a single dose may only be detectable for a day or less. Continued use on a daily basis may cause the drug to be detected for 2 to 3 days after cessation of use. Marijuana, by way of contrast, can be detected for up to 3 weeks after cessation of use if it has been used on a regular daily basis (Manno, 1986). For a detailed description of typical screening and confirmation techniques for a range of drugs see Hawks and Chiang (1986).

Hair analysis

Recent technological advances have led to the development of hair analysis to determine the use of a range of substances. Unlike urine screening, in which most drug use is ascertained within a relatively brief window of 2–3 days, hair analysis will detect the presence of drugs for the duration of the growth of the hair. Drugs and their metabolites, present in the blood plasma become embedded in the hair structure during the process of keratinisation and remain there throughout the life of the hair (Marsh, Evans and Strang, 1995). Indeed, hair analyses have been conducted posthumously; Napoleon's hair was found to contain arsenic whilst Keat's hair was found to contain laudanum (see Strang, Black and Marsh, 1993).

As human hair located on the posterior vertex region of the scalp grows at an average rate of 1 cm/month it is possible to estimate the approximate time at which the drug was used. Interestingly, for methadone and its metabolites at least, commercially available hair colorants and peroxide bleach reduce drug levels but do not totally eliminate them (Marsh, Evans and Strang, 1995).

Although this technology is interesting, at present it offers little practical help to clinicians. The laboratory process involved is highly specialised and expensive and is not available in Australia. Whether hair analysis will offer any clinical advantages over urinanalysis in the future remains to be seen.

PART IV

Screening and assessment of psychiatric problems

Measures used to assess general psychological state

Symptom Checklist-90-Revised (SCL-90-R)

Key reference

Derogatis, L.R. (1994) Symptom Checklist-90-Revised: Administration, scoring and procedures manual, 3rd edition. National Computer Systems, Inc., Minneapolis, MN 55440

Summary

The Symptom Checklist-90-Revised (SCL-90-R) is a 90-item self report checklist designed to measure current psychological and psychiatric symptoms. It is a widely used instrument that is reliable and valid. It has been used with substance abuse populations and has been found to perform better than other general measures of psychological functioning. A brief 53-item version is currently available (Brief Symptom Inventory, BSI). The SCL-90-R and the BSI can only be purchased by Registered Psychologists with post graduate qualifications in Psychology. Scoring and interpretation must be supervised by a Registered Psychologist.

Description and development of the Symptom Checklist-90-Revised (SCL-90-R)

The SCL-90-R is a revised and updated version of the Hopkins Symptom checklist and the SCL-90. It is a 90-item self report questionnaire

designed to assess psychological problems and symptoms of psychopathology. There are nine primary symptoms dimensions that are measured: Somatization, Obsessive Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. It should be noted that these are primary symptom dimensions and therefore do not correspond directly with a diagnosis based upon either DSM IV or ICD 10 nomenclature. However, elevated scores on any subscale is an indication that further assessment of the client's mental state is warranted.

The SCL-90-R also provides three summary scores. The Global Severity Index (GSI) is a composite score obtained by summing the scores on the nine symptom dimensions with the additional items and dividing this score by the total number of items (usually 90 if there are no missing responses). According to Derogatis (1994) the GSI is the best single indicator of the current level or depth of the disorder and should be used in most instances where a single summary measure is required (p. 12). The Positive Symptom Distress Index and Positive Symptom Total reflect the intensity and extensiveness of symptoms respectively.

Reliability and validity of the SCL-90-R

The SCL-90 and the revised SCL-90-R have been extensively used in research and clinical practise. At the time of writing this review a literature search found over 400 research reports published since 1990 in which the SCL-90 or SCL-90-R had been administered. Consequently there is considerable information pertaining to reliability and validity of the instrument as a whole and for each individual subscale. A review of the literature is beyond the scope of the present review and a brief overview of the information contained in the manual (Derogatis, 1994) is provided. In addition to this, selected research reports in which the SCL-90-R has been used with individuals with substance misuse problems will be mentioned. The nine symptom dimensions have high internal reliability with a*lpha* coefficients for each of the dimensions ranging from .79 for Paranoid Ideation to .9 for Depression (Horowitz et al., 1988). Overall, the SCL-90-R has high test-retest reliability (Horowitz, et al., 1988).

In terms of validity, there are a large number of published reports indicating that the SCL-90-R

performs better than most instruments in both assessment and in measuring change following either a drug intervention or psychological treatment. A full description of studies is provided in the manual (Derogatis, 1994).

There are two significant studies investigating sensitivity and specificity of the SCL-90-R. In the first, the sensitivity and specificity of the SCL 90-R was compared to that obtained with the Present State Examination (a comprehensive diagnostic interview) in two samples of patients: one with chronic physical disease (diabetes mellitus) and the other with bulimia nervosa (Peveler and Fairburn, 1990). The majority of the subscales of the SCL-90-R corresponded closely with their PSE counterparts. The optimum GSI cut-off points were 0.68 (sensitivity 72 percent, specificity 87 percent) in the diabetic sample and 1.00 (sensitivity 77 percent, specificity 91 percent) in the bulimic sample. In a more recent study, Mattick et al. (submitted for publication) compared the SCL-90-R, the General Health Questionnaire (GHQ) and the Beck Depression Inventory (BDI) with DSM-III diagnostic categories "depression", "anxiety" and "any diagnostic category" derived from the CIDI in methadone maintained subjects. The SCL-90-R Global Severity Index and the symptom dimensions Depression and Anxiety were significantly superior to the GHQ-28 in detecting the relevant disorder.

Suitability for special populations

The SCL-90-R has been used with diverse populations and has been translated into numerous languages. It is suitable for both male and female respondents. To our knowledge specific field trials or assessments have not been conducted with Aboriginal and Torres Strait Islander people. The SCL-90-R's predecessor the Hopkins Checklist has been used successfully with Aboriginal people (Hunter, 1993) and it seems likely that the SCL-90-R would also be able to provide helpful diagnostic information.

Administration and scoring

There is both a pen and paper and computerised version of the SCL-90-R. The former takes 12–15 minutes to complete, is designed for adolescents over the age of 13 years and for adults. The reading age required is Year 8.

A short form of the SCL-90-R is now available. This is called the Brief Symptom Inventory (BSI)

and consists of 53 items and measures the same 9 primary symptom dimensions as the SCL-90-R.

Availability and cost

The SCL-90-R is a copyrighted instrument and therefore cannot be reproduced. It is published by NCA Assessments and distributed in Australia by Psychological Assessments Australia (PAA). All test purchasers must be Registered Psychologists with post graduate qualifications in Psychology.

General Health Questionnaire (GHQ)

Key reference

Goldberg, D. and Williams, P. (1988). A Users' Guide to the General Health Questionnaire. NFER-NELSON Publishing Co. Ltd. Windsor, Berkshire, UK.

Summary

The General Health Questionnaire (GHQ) is a self-administered screening test sensitive to the presence of psychological symptoms. It was designed as a screening instrument and it is less sensitive to the presence of psychological disorders than the more comprehensive SCL-90-R. It has both adequate reliability and validity and is easily administered and scored. It may be used by a range of health and mental health professionals and is incorporated in the OTI.

Description and development of the General Health Questionnaire (GHQ)

The General Health Questionnaire (GHQ) was developed at the Maudsley Hospital, South London, England. It is designed to be a self-administered screening test which is sensitive to the presence of psychiatric disorders in individuals presenting in primary care settings and nonpsychiatric clinical settings. The GHQ is not designed to detect symptoms that occur with specific psychiatric diagnoses such as psychotic disorders, rather, provide a measure of overall psychological health or wellness. In order to assess this, the GHQ focuses on two major classes of phenomena: (i) inability to continue to carry out normal "healthy" functions and

(ii) symptoms of a distressing nature (Goldberg and Williams, 1988, p 5).

There are several versions of the GHQ. The original GHQ containing 60 items was derived from factor analysis of a checklist of 140 items. Shorter versions of the GHQ have been developed from the GHQ-60, the most widely used being the GHQ-30, although there is also an even shorter version containing 12 items; the GHQ-12. There is also a GHQ-28. This version provides four specific subscales: somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. It is important to note that these subscales do not necessarily correspond to psychiatric diagnoses nor are the subscales independent of each other (Goldberg and Williams, 1988, p 41).

Reliability and validity of the GHQ

The GHQ is a widely used measure of psychological health and consequently there is a large literature on the reliability and validity of the GHQ. A comprehensive review of the literature is contained in the manual (Goldberg and Williams, 1988) and a brief summary of this will be reported.

The GHQ has reasonable test-retest reliability although a definitive study is yet to be conducted. The reliability coefficeints are higher in studies in which there is a high prevalence of disorder and in which the GHQ is administered within a relatively short period of time (i.e. 5–7 days) and range from .85 to .90 (De Paulo and Folstein, 1978; see also Goldberg and Williams, 1988). When using a sample drawn from the general population, the reliability coefficients decrease substantially. For example, when the reliability of the GHQ was assessed twelve months apart in a sample of school leavers and men facing redundancy, the test-retest correlations were .58 and .51 respectively (Layton, 1986).

The GHQ has both content validity and construct validity, studies pertaining to these issues are reviewed in detail by Goldberg and Williams (1988). Studies in which criterion validation has been reported are also discussed in detail in Chapter 6 (Goldberg and Williams, 1988). There are 22 studies reporting on the correlations between GHQ scores and a standardised psychiatric assessment. The median correlation between GHQ and the criterion interview was .72 for the GHQ-60, .59 for the GHQ-30, .76 for the

GHQ-28 and .70 for the GHQ-12. In order to assess overall sensitivity and specificity Williams, Goldberg and Mari (1987) used the information from 43 independent studies to obtain overall measures. The GHQ-12 had a sensitivity of 89% and specificity of 80%; the GHQ-28 had a sensitivity of 84% and specificity of 82%; the GHQ-30 has a sensitivity of 74% and specificity of 82% and the GHQ-60 had a sensitivity of 78% and a specificity of 85%.

While these overall figures are high, two studies conducted with substance misuse populations indicate that the sensitivity and specificity of the GHQ is generally lower than those in a general medical or community samples. Ross and Glasser (1989) found a sensitivity of 82% and a specificity of 55% for the GHQ-60 using 11 to 12 as the optimal threshold score. Mattick et al. (submitted for publication) reported a sensitivity of 68% and a specificity of 69% for the GHQ-28 using a cut-off score of 6. Despite these findings, the GHQ has sufficient reliability to warrant its use as a screening instrument for clinicians working with a substance misusing population.

Suitability for special populations

The GHQ has been translated into 38 languages and used in diverse cultural groups. As it is primarily concerned with the detection of "psychological illness" the items appear to have cross cultural relevance despite cultural variations in the expression of mental illness. In the absence of studies in which the GHQ has been used with Aboriginal and Torres Strait Islander people, it is possible to suggest that the items on the GHQ reflect universal aspects of psychological distress and are equally relevant to these particular cultural groups. It would appear on the basis of work with the Hopkins Symptom Checklist-20 that items scored on a Likert scale rather than as dichotomous variables are more acceptable to Aboriginal people living in remote parts of Australia (Hunter, 1993). Indeed, Hunter's experience suggests that the most successful scoring of a questionnaire involved the development of a response category that relied upon visual discrimination. Further research is required to determine whether this is also the case with the GHQ.

There are no issues specific to women or other special interest groups.

Administration and scoring

The great advantage of the GHQ-28 is its short administration time (5–10 minutes) and its availability to a range of professionals. Unlike the SCL-90-R, its use is not restricted to Registered Psychologists. Indeed, it was specifically developed for use by a broad range of clinicians working in community and non psychiatric settings. It is therefore a very appropriate instrument for use by Drug and Alcohol Workers.

The manual is clearly written and provides a comprehensive review of the literature. The sections describing the statistical procedures used in the development of the GHQ are particularly well written and provide sufficient information for the non statistician to understand the basic principles and procedures involved. Its use is strongly recommended for clinicians working with substance misuse.

Availability and cost

The GHQ-28 is incorporated into the OTI. All other versions are copyright protected.

Brief Psychiatric Rating Scale (BPRS)

Key reference

Overall, J.E. and Gorham, D.R. (1962). The brief psychiatric rating scale. *Psychological Reports*, **10,** 799–812.

Summary

The Brief Psychiatric Rating Scale (BPRS) is a clinician rating scale in which 18 items are rated on a continuum of not present to extremely severe. When used by clinicians trained in the assessment and diagnosis of psychopathology it is reliable and valid. However, the degree of training and expertise required for reliable administration is considerable and therefore it is most appropriately administered by a clinical psychologist or psychiatrist.

Description and development of the Brief Psychiatric Rating Scale (BPRS)

The Brief Psychiatric Rating Scale (BPRS) is a clinical rating scale widely used in psychiatric clinical practise. It was developed in the early 1960's (Overall and Gorham, 1962) with an original sample of 6000 psychiatric inpatients. Since then at least four versions of the BPRS have been developed. For the purposes of the present report, only the 18-item version will be reviewed.

The BPRS, unlike the SCL-90-R and GHQ, is a clinician rated instrument. Ratings are made after a brief (15–20 minutes) unstructured interview with the patient. Each item is rated on a scale of not present, very mild to extremely severe.

Reliability and validity of the BPRS

The BPRS has been used in a large number of research studies and consequently there is a substantial literature in which the reliability and validity of the scale has been investigated. A 1980 review of the psychometric studies on the BPRS concluded that "when the BPRS is properly used, inter-rater reliability is generally satisfactory… the BPRS is a sensitive and effective measure both of psychopathology and of treatment-related symptom changes (Hedlund and Vieweg, 1980; cited in Hafkenscheid, 1991). Early reports of the BPRS found that measures were stable across time and high inter-rater reliability (e.g. Flemenbauch and Zimmermann, 1973). However, the generality of these findings have been questioned by Hafkenscheid, 1991) who found unacceptably low inter-rater reliability. While this does not mean that the BPRS is without clinical utility, it does emphasise the need for users to have extensive knowledge of diagnostic concepts and categories.

Suitability for special populations

There are no gender or cultural issues that are specific to the BPRS. However, as it is a clinician rated instrument, the attitudes and beliefs held by the clinician will have some bearing on the rating of particular diagnostic categories. While broadly speaking the validity studies of the BPRS indicate that this is not a major issue, use of the BPRS with people from ethnic or cultural groups should take into account the individual's cultural frame of reference when making a judgement on presence of psychopathology.

To the authors' knowledge the BPRS has not been administered to Aboriginal or Torres Strait Islander people. The usefulness of this scale needs to be evaluated for cultural relevance.

The BPRS has been used with individuals with a primary substance misuse problem. Steer and Schudt (1979) reported its use with heroin addicts and identified anxiety-depressive symptoms as the most prevalent disorder, with no individuals displaying significant thought disturbance (withdrawn, simple and paranoid), a similar finding was reported by Westermeyer, Tucker and Nugent (1995) in a sample of newly abstinent alcoholic or substance abuse patients.

The BPRS has also been used in a number of research studies in which the relationship between major psychiatric illness and substance misuse has been investigated (e.g. Dixon et al., 1991; Warner et al., 1994).

Administration and scoring

The BPRS is a reliable and valid instrument when used by individuals who are trained in the assessment and diagnosis of psychopathology. Generally, this is most likely to refer to clinical psychologists or psychiatrists and this obviously limits the usefulness of the BPRS. However, if an agency decided that routine use of the BPRS could be usefully incorporated into a battery of assessment and screening instruments then training could be given to clinicians with a background in psychology or psychiatric nursing. In view of the difficulties that have been reported in relation to inter-rater reliability, it is advisable that ongoing training and reliability checks be undertaken by those clinicians involved in administration of the BPRS.

As this scale is clinician rated, it does not require the client to read or write. This may be helpful when assessing individuals who are either illiterate or who are unable to read English.

Availability and cost

The BPRS is in the public domain and may be used without cost but with due acknowledgment.

Measures used to assess specific disorders

Beck Depression Inventory (BDI)

Key reference

Beck, A.T. and Steer, R.A. (1987). Beck Depression Inventory Manual. The Psychological Corporation Harcourt Brace Jovanovich Inc. San Antonio.

Summary

The Beck Depression Inventory (BDI) is one of the most widely used self report measures of depression. It has been demonstrated to be both a reliable and valid measure of depression in a range of cultural groups and with psychiatric and non psychiatric populations. It has been widely used with substance misusers and is therefore recommend as a useful screening instrument for drug and alcohol workers to use under the supervision of a clinical psychologist or psychiatrist.

Description and development of the Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI) has become one of the most widely used instruments used to assess depression. It was initially based upon clinical observations and descriptions of symptoms frequently experienced by depressed psychiatric patients. These observations formed the basis of the present 21-item BDI. The items were chosen to assess only the severity of depression and do not reflect any particular theory of depression (Beck and Steer, 1987). The BDI, although sensitive to the presence of depressed mood, is not a diagnostic instrument, and thus an elevated score on the BDI does not equate with a diagnosis of depression but rather indicates the presence of depressed mood. A diagnosis of depression should only be arrived at after conducting a clinical interview (Beck and Steer, 1987).

The 21 symptoms and attitudes are rated on a 4-point scale and cover pessimism, sense of failure, self-dissatisfaction, guilt, self dislike, suicidal ideas, social withdrawal, indecisiveness, body image change, insomnia, fatigability, weight loss, somatic preoccupation, loss of libido in the week preceding administration (see Andrews, Peters and Teeson, 1993). Beck and Steer (1987) emphasise the importance of attending to elevated scores (i.e. 3–4) on items relating to suicide ideation (item 9) and hopelessness (item 2) as these items have been found to be nearly as predictive of eventual suicide as the 20-item Hopelessness Scale (p 7; see also Keller and Wolfersdorf, 1993).

Reliability and validity of the BDI

The psychometric properties of the BDI have been widely studied and have been extensively reviewed (e.g. Steer et al., 1986). *Alpha* reliability coefficients range from .76 to .95 in psychiatric samples and from .73 to .92 in non psychiatric samples (Beck, Steer and Garbin, 1988) indicating that the BDI has good internal consistency. It also has high test-retest reliability with correlations ranging from .48 to .86 with psychiatric patients and from .60 to .83 with non psychiatric groups (Beck et al., 1988).

The validity of the BDI in measuring the construct of depression has been extensively researched. Beck et al. (1988) reported that there were significant correlations between clinical ratings of depression and scores on the BDI. High correlations between the BDI and other rating scales have also been reported, particularly the depression subscale of the SCL-90-R. In relation to substance misusers, the BDI has been found to be a reliable measure of depression (e.g. Kleinman et al., 1990).

In relation to sensitivity and specificity in a substance misuse population, Rounsaville et al. (1979) found that the BDI had greater sensitivity and specificity than either the SCL-90 or the Raskin Depression Scale when compared to a Research Diagnostic Criteria for depression in opiate addicts. The usefulness of the BDI in screening for depression in cocaine addicts was investigated by Weiss et al. (1989). In this study the BDI offered the best combination of sensitivity and specificity compared to the Hamilton Rating Scale for Depression and the SCL-90. However, the low specificity of all three scales led the authors to propose that the BDI may be of limited use as an initial screening instrument in cocaine abusers. A

recent Australian study (Mattick et al., submitted for publication) found that the BDI performed as well as the SCL-90-R and better than the GHQ in detecting depression in methadone maintained clients. Maximum sensitivity (73%) and specificity (73%) was obtained with a cut-off score of 18.

Suitability for special populations

The BDI has been used in a range of cultural settings. A review of the literature since 1990 found reports attesting to the reliability and validity of the BDI in Spanish (Torres et al., 1991), Arabic (Hamdi et al., 1988), German (Richter et al., 1991) and Chinese (Xu, 1991). In addition to this, the BDI was found to be reliable when administered to illiterate Black South Africans (Westaway and Wolmarans, 1992). Given that the BDI performs well in these diverse cultural settings, it is probable that the BDI may be appropriately used with Australian Aboriginal and Torres Strait Islander people. However, to the authors' knowledge, the BDI has not been routinely used with this population.

Administration and scoring

The BDI takes approximately 5–10 minutes to complete when self administered. Oral administration may take considerably longer depending upon the setting and characteristics of the individual completing it. Each statement is scored on a 4-point scale (0–3) and a total score is obtained by summing the ratings for each statement. As a general guideline a score from 0–9 is considered to be within the normal range or asymptomatic; a score of 10–18 indicates mild-to-moderate depression; a score of 19–29 indicates moderate-to-severe depression and a score of 30 or more indicates extremely severe depression (Beck and Steer, 1987, p. 7). Full administration and scoring guidelines are provided in the Manual (Beck and Steer, 1987). Most recently a computer-administered version of the BDI and the BHS have been shown to have good discriminant reliability (Steer et al., 1995).

Availability

The Beck Depression Inventory is copyright protected and may not be reproduced without permission. A copy may be purchased from The Psychological Corporation, PO Box 9959, San Antonio, TX 78204-0959. Scoring and interpretation must be supervised by a Registered Psychologist.

Beck Hopelessness Scale (BHS)

Key reference

Beck, A.T. and Steer, R.A. (1988). Beck Hopelessness Scale Manual. The Psychological Corporation Harcourt Brace Jovanovich, Inc. San Antonio.

Summary

The Beck Hopelessness Scale (BHS) is a well validated measure of hopelessness and specifically targets negative attitudes about the future. Elevated scores on the BHS have been associated with suicide attempts. The scale has been widely used in a range of clinical groups and is reliable and valid. Scoring and interpretation must be supervised by a Registered Psychologist.

Description and development of the Beck Hopelessness Scale (BHS)

The Beck Hopelessness Scale (BHS) was developed to assess hopelessness: specifically, negative attitudes about the future. It is based upon a concept of hopelessness where a system of cognitive schemas in which negative expectations about the future are a central theme; it is extremely important to note that elevated scores on the BHS have been associated with suicide attempts. Close scrutiny of items and further assessment of suicidal intent is always recommended if clinically significant scores are obtained.

The BHS comprises 20 statements which are answered true or false. These items were selected from a large pool of statements made by patients when they were depressed and not depressed and therefore have good face validity.

Reliability and validity of the BHS

The BHS has been extensively used in both clinical and research settings and there is considerable literature on its reliability and validity. The manual (Beck and Steer, 1988) provides a comprehensive review of the use of the BHS across diverse samples of both clinical and non clinical groups. The BHS has been shown to

have high internal consistency across seven clinical groups and high test-retest reliability (Beck and Steer, 1988, p 12).

Suitability for special populations

The BHS has been used in a range of cultural groups and with a diverse sample of clinical groups including substance misusers. It has been used with adolescents from age 13 years but the manual recommends its use for individuals aged 17 years or more. Good internal consistency, stability and reliability were found in a Spanish version of the BHS in a sample of Spanish psychiatric patients (Aguilar et al., 1995, [English abstract]).

To the authors' knowledge it has not been used with Aboriginal or Torres Strait Islander groups. The actual items of the BHS refer to emotional states such as feelings of pessimism about future prospects rather than specific daily living problems or occurrences. It is tentatively suggested that this would make it a slightly less "culture bound" instrument and therefore may be a valid measure of pessimistic views about the future. Whether this measure of hopelessness is however, related to suicidal intent cannot be assumed in a cultural group who have experienced considerable displacement and other life events that may lead them to hold a generally pessimistic view about the future. Further research is needed to evaluate the appropriateness of this instrument.

The BHS has also been used with male prison inmates and found to be predictive of suicidality among this population (Ivanoff et al., 1994). A large study of nontreatment intravenous drug users seeking HIV testing and counselling in New York investigated the relationship between self-reported severity of suicidal ideation, and subsequently confirmed HIV seropositivity. The BHS structure was comparable with that described for psychiatric patients.

Administration and scoring

The BHS may be self-completed or administered orally. It takes between 5–10 minutes to complete and is easily scored by summing the keyed responses of hopelessness for each of the items. As a general guideline 0–3 is within the normal range, 4–8 is mild, 9–14 is moderate and greater than 14 is severe. Full administration and scoring guidelines are provided in the manual (Beck and Steer, 1988).

The BHS may be administered by a range of mental health workers but the interpretation needs to be supervised by an appropriately trained clinical psychologist or psychiatrist. As it is a measure that is sensitive to suicidal intention, particular attention should be paid to individual items and individuals with scores in the clinical range should always be assessed further.

Availability

The Beck Hopelessness Scale is copyright protected and may not be reproduced without permission. A copy may be purchased from The Psychological Corporation, PO Box 839954, San Antonio, TX 78283-3954.

Spielberger State Trait Anxiety Inventory (STAI)

Key reference

Spielberger, C.D., Gorsuch, R.L., Lushene, R., Vagg, P.R. and Jacobs, G.A. (1983). Manual for the State-Trait Anxiety Inventory (Form Y). Palo Alto, Consulting Psychologist Press, Inc.

Summary

The State-Trait Anxiety Inventory (STAI) is one of the most widely used measure of both situational or transitory anxiety (state) and the more enduring personality characteristic (trait). It is reliable and valid and has been used with a clinical and non clinical populations. Scoring and interpretation must be supervised by a Registered Psychologist.

Description and development of the State-Trait Anxiety Inventory (STAI)

The STAI is a 40-item self report questionnaire used to measure current anxiety; described as feelings of tension, apprehension, nervousness and worry (20 items) and a more enduring stable personality characteristic referred to as trait anxiety (20 items). The S-Anxiety scale is completed by rating each of the 20 items on a 4-point scale (not at all, somewhat, moderately so, very much so). The T-Anxiety scale asks for ratings to be made on the 20-items with reference to how an individual generally feels.

The original STAI was developed in the 1960's. Since then the STAI-Form X and the STAI-Form Y have been developed, the latter being the most recent version. Thus, the STAI-Form Y builds upon extensive item development occurring in the earlier versions. In the construction and standardisation of Form Y, more than 5,000 subjects were tested. In addition to obtaining reliability and validity data from this sample, the STAI Form Y has been used extensively, resulting in a considerable body of literature attesting to its reliability and validity.

Reliability and validity of the STAI

Based upon the original normative sample, the test-retest reliability of the STAI T-Anxiety scale is relativity high with a median reliability coefficient of .76 for college students and .69 for high school students (Spielberger et al., 1983). Although lower for the STAI S-Anxiety (a median reliability coefficient of .33) this scale is still considered to have good internal consistency as an *alpha* coefficient of .9 was obtained. This is arguably a better measure of internal consistency than test-retest reliability when measuring current emotional state.

The T-Anxiety and S-Anxiety scales have been demonstrated to distinguish reliability between psychiatric and nonpsychiatric patients. Further, scores on the S-Anxiety scale are significantly higher in stressful situations (e.g. immediately before an exam, during military training) compared to nonstressful settings, (e.g. after a relaxation class). Although there is a high correlation between scores on the S-Anxiety and T-anxiety, S-Anxiety scores increase under conditions of greater *a priori* stress and decrease under more relaxed conditions. The T-Anxiety correlates with other measures of trait anxiety (Spielberger et al., 1983).

Suitability for special populations

The STAI has been widely used and there are no special issues or concerns in relation to its appropriateness as a measure of anxiety in women. It has not been used with Aboriginal or Torres Strait Islander groups to the authors' knowledge, indicating that further research addressing the suitability of the measure with this group is warranted.

Administration and scoring

The STAI takes between 5–10 minutes to complete. A reading level of 4th or 5th grade is required. Each item is given a weighted score of 1 to 4. A rating of 4 indicates the presence of a high level of anxiety for 10 of the S-Anxiety and T-Anxiety items; a high rating indicated an absence of anxiety for the remaining items. Thus, when scoring the STAI close attention must be paid to those items in which a reverse score must be applied. A template is provided with the manual to facilitate scoring.

As with the SCL-90-R this test can only be purchased by Registered Psychologists with post graduate training. Full administration and scoring guidelines are provided in the Manual.

Availability

The STAI is copyright protected and may not be reproduced without permission. A copy may be purchased from the distributor of the instrument in Australia.

Eating Attitudes Test

Key reference

Garner, D.M., Olmstead, M.P., Bohr, Y and Garfinkel, P.E. (1982). The eating attitudes test: Psychometric features and clinical correlates. *Psychological Medicine*, 12, 871-878

Summary

The Eating Attitudes Test (EAT) is a screening test that detects disturbed eating patterns. It is reliable and valid and has been used widely with women and girls. Given the high prevalence of eating disorders amongst substance misusers, the EAT is a useful screening instrument when developing a treatment plan. Scoring and interpretation of this instrument must be supervised by a Registered Psychologist.

Description and development of the Eating Attitudes Test (EAT)

The Eating Attitudes Test (EAT) is a screening instrument that is useful for detecting the

presence of disturbed eating patterns in populations at high risk for eating disorders. It was initially developed and validated with 2 independent groups of female anorexia nervosa patients and female normal control subjects. The 40 items of the EAT were obtained by a series of administrations and analysis inclusion of only those items that reliably discriminated anorexic patients from normal controls (Garner and Garfinkel, 1979). More recently, the EAT-26 has been developed in which the 26 items were found to load onto 3 factors. Factor I was labelled "Dieting" and reflected pathological avoidance of fattening foods and preoccupation with body shape. Factor II was labelled "bulimia and food preoccupation" and was positively related to bulimia and a heavier body weight; Factor III was labelled "oral control" and consisted of items reflecting self control about food as well as social pressure to gain weight (Garner et al., 1982).

Reliability and validity of the EAT

The initial reliability study found the EAT-40 to have good internal consistency (*alpha* coefficient = .79 for the clinical sample; .94 for a pooled sample of both the clinical and normal control group; Garner and Garfinkel, 1979). The EAT was also correlated with other well validated measures of eating restraint and was not related to personality or to changes in weight p*er se*. In a later study, preliminary factor analysis found that 3 factors accounted for 40% of the variance. The 14 items not loading on any of these 3 factors were eliminated leaving a total of 26 items. The EAT-26 correlated highly with the EAT-40

indicating that the EAT-26 may be reliably used as a screening instrument for disordered eating. While the authors caution against equating an elevated score with a diagnosis of anorexia, a cut-off score of 20 on the EAT-26 correctly identified 84% of the subjects as either anorexic or controls (Garner et al., 1982).

Suitability for special populations

The EAT has been widely used in the eating disorders field although there are no published reports of its use with substance misusers. The majority of the sample in which it has been used have been female. Given the high prevalence of eating disorders amongst substance misusers, a screening measure such as the EAT would be useful in development of a treatment plan. Its routine use is not recommended.

Its applicability to Aboriginals and Torres Strait Islanders is doubtful. Cross cultural studies of eating disorders indicate that these disorders occur mainly in Westernised countries and less so in other cultures. The prevalence of eating disorders amongst Aboriginal and Torres Strait Islanders has not been systematically investigated to the authors' knowledge.

Administration and scoring

Details are available in the manual.

Availability

This instrument is copyright protected and should be purchased from the test distributors.

PART V

Recommendations for future research

General comments

The aim of the present review was twofold: (i) to identify screening and diagnostic instruments that could be used to detect alcohol and other drug problems in individuals with psychiatric disorders and (ii) to identify relevant psychiatric instruments that could be used to screen or diagnose psychiatric problems in individuals with a substance misuse disorder. While there has been increasing acknowledgment of the potential role of standardised instruments in the addictions research literature, such instruments are generally used by a small proportion of those working in the drug and alcohol field in Australia (Dawe and Richmond, *in press*); with no information on their use in other mental health settings. However, although the use of these instruments are strongly recommended it is also important to emphasise that a screening or diagnostic instrument, no matter how well validated, cannot replace a clinical interview. Individuals who score in the clinical range on a screening instrument should be further assessed to determine their needs and develop a treatment plan.

Screening instruments, by and large, need to be administered and interpreted without comprehensive training. Many of the instruments reviewed in this document fall into this category. Thus the AUDIT, for example, can be used by a range of clinicians in primary health care settings, specialist inpatient and outpatient settings and work settings. Similarly, the GHQ is also an instrument that can be administered in a range of settings in which individuals with substance misuse problems are treated.

Instruments that lead to a formal diagnosis, such as the CIDI, require specialist training as does the

BPRS, an instrument which is clinician-rated. They are included in the present review, however, because it is helpful for al*l* clinicians who are working in the mental health field to have some familiarity with a range of instruments and an understanding of the principles upon which they are based.

Before administering any instrument, the individual's capacity to complete such an instrument needs to be determined, and sensible clinical judgement should be exercised. Information on time required to administer the instrument and scoring guidelines are included whenever possible. Thus, the clinician is placed in a position to make an informed judgement about the appropriateness of administration of the instrument. Unless the information obtained from the instrument can be acted upon, there is little point in asking the client to complete it. For example, asking a distressed, psychotic patient to complete an AUDIT on entry to hospital may not be feasible for the individual and may add little to the immediate treatment plan. Following admission, and at a point at which the patient is less distressed, an AUDIT may contribute important information that should be considered in the development of a management plan.

Recommendations for future research

Recommendations for future research should focus on at least the following areas:

(a) The appropriateness of newer screening and diagnostic instruments for substance misuse in psychiatric populations.

A considerable literature is available on the usefulness of instruments such as the MAST and the ADS in patients with psychiatric illnesses. However, newer instruments that hold promise such as the AUDIT, a screening instrument, and the SADQ or SADD, measures of severity of alcohol dependence, are yet to be administered to individuals with psychiatric problems. Given the prevalence of alcohol and substance misuse problems in this population, this is an area of research that warrants further investigation.

(b) The relevance of screening and diagnostic instruments for Aboriginal and Torres Strait Islander population.

There has been little investigation of the relevance of screening and diagnostic instruments with this population. In part this reflects the enduring concerns regarding the usefulness of psychological testing at all. However, this has been recognised in certain Aboriginal groups to be clearly disadvantaging (E. Hunter, personal communication). There are now several studies in which the prevalence of drug and alcohol use has been documented; with drug and hazardous alcohol use disproportionately higher in Aboriginal compared to non Aboriginal samples (e.g. Hunter et al., 1991; Perkins et al., 1994). Further research is a priority to enable the adequate planning of both substance misuse and psychiatric services and extending current treatment approaches (e.g. Brady, Dawe and Richmond, submitted for publication). As a first step in this process, investigation of the appropriateness of general screening instruments and diagnostic nomenclature is essential.

With regard to problem substance use, the issue of solvent abuse in the form of petrol sniffing has only been addressed in the context of the appropriateness of the DAST as a screening measure. Given the concern expressed about the use of this substance and proposed strategies advocated to reduce this (Burns et al., 1995) it would seem sensible and timely that instruments or methods for routinely screening for petrol sniffing were developed as part of a national strategy to extend current treatment options.

(c) The appropriateness of current screening instruments in the detection of harmful and hazardous drinking in women.

Another area which would appear to warrant further investigation in an Australian context, is the sensitivity of alcohol screening instruments in detecting at risk drinking in women. This is an issue that has been of growing concern both in the UK and the USA (see Saltz and Ames, 1996; Ames et al. 1996 for a discussion). There are major problems associated with all of the instruments that have been developed with the exception of the T-ACE and TWEAK. Whilst these may appear to overcome some of the difficulties relating to quantity and/or the focus on male behaviour they have not been evaluated outside of the USA. Further, the use of alcohol by young Aboriginal women is also cause for concern. Whether these instruments are equally applicable to non Aboriginal and Aboriginal women needs further research.

(d) The impact of screening instruments in treatment

Finally, the barriers to screening for alcohol/drug and psychiatric disorders by mental health and drug/alcohol professionals requires research to determine whether the availability of screening instruments does lead to better detection and management.

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