Chapter 5
Management of comorbidity
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Introduction
Comorbidity of substance use disorders and mental disorders is very common, and there is substantial heterogeneity within subgroups in terms of both their characteristics and the nature of causal relationships between the disorders. Assessment and management strategies need to deal with both the size of the problem across the community and its severe impact in some subgroups, including those with psychosis. At this stage, the research base from which we can derive recommendations is very narrow, but it does offer a foundation for preliminary conclusions. This chapter reviews the current evidence and makes some suggestions for assessment and for both psychological and pharmacological management.

Implications of comorbidity for management
Interventions for substance use disorders for those with mental disorders need to take account of several key features of comorbidity, many of which are reviewed more extensively in previous chapters. These include:

1. **Frequencies are high.** Comorbidity between substance use and other mental disorders is very common (Degenhardt, Hall, & Lynskey, 2001; Regier et al., 1990), especially in higher intensity treatment settings (Kavanagh, Saunders et al., 1999), and it often involves multiple substances (Degenhardt et al., 2001; Kavanagh et al., 2002). Predictive factors for comorbidity (especially in relation to illegal drugs) are similar to those in the general community, including male gender, young age, lower educational level, and single (or divorced) marital status (Burns & Teesson, 2002; Mueser, Noordsy, Fox, & Wolfe, 2000; Salyers & Mueser, 2001).

2. **Highest risk vs. highest frequency produce different target groups.** The greatest numbers of people with this comorbidity in the population are those with the most commonly occurring disorders — i.e. anxiety or depression, and misuse of alcohol or nicotine (Degenhardt et al., 2001). On the other hand, the greatest increased risk in Axis I disorders is seen in psychoses (Regier et al., 1990), and these people are also more likely to show significant functional deficits from substance use, even at relatively low levels of intake (Drake, Osher, & Wallach, 1989; Drake & Wallach, 1993).

3. **The greatest health impact is from cigarette smoking.** Smoking-related diseases represent a critical source of excess morbidity and early mortality in mental disorders, especially in people with schizophrenia (Brown, Inskip, & Barraclough, 2000; Lichtermann, Ekelund, Pukkala, Tanskanen, & Lonqvist, 2001), for whom the rates of cigarette smoking are very high (Reichler, Baker, Lewin, & Carr, 2001). However smoking has been relatively neglected in the development of specific management approaches for people with comorbid mental disorders.
4. **Higher rates of comorbidity are found in more intensive treatment settings.** Patients with either substance use or mental disorders who are receiving emergency or inpatient treatment are likely to show very high rates of comorbidity, partly because of what has become known as Berkson’s bias (Berkson, 1946). The joint symptomatic and functional impacts from both disorders increases the chance that the person will receive treatment (Mueser et al., 1990). If patients from populations with exceptionally high risk are examined — such as hospitalised young people with psychosis — a substantial majority may have comorbid substance use disorders (Galanter & Castaneda, 1988; D. J. Kavanagh et al., 1999).

5. **Correlates may differ across substances.** While many correlates of substance use disorders in clinical populations closely parallel those in the general population (Salyers & Mueser, 2001), there is also evidence that the pattern of correlates differs across substances (Mueser, Bellack, & Blanchard, 1992; Mueser et al., 1990). For example, young people with psychosis are especially prone to abuse of cannabis, cocaine, and amphetamines, whereas alcohol use disorders tend to occur more over the life span.

6. **Comorbidity results in poorer physical and psychiatric outcomes.** Comorbidity of substance use and severe mental disorders is associated with an increased risk of illness and injury (Dickey, Azeni, Weiss, & Sederer, 2000), including self-harm and suicide (Allebeck & Allgulander, 1990), and poorer psychiatric outcomes (Mueser et al., 1992). Treatment is often less effective (Worthington et al., 1996) and the risk and severity of significant medication side-effects are increased in clients with substance misuse (Dixon, Weiden, Haas, Sweeney, & Frances, 1992; Zaretsky, Rector, Seeman, & Fornazzari, 1993). Among the contributors to increased relapse rates and reduced treatment effects is a reduced rate of medication adherence and appointment attendance (Owen, Fischer, Booth, & Cuffel, 1996). Assertive follow-up is rendered more difficult by increased rates of mobility and homelessness (Mueser et al., 1992), and the engagement and retention in treatment for comorbidity is often a significant challenge.

7. **A variety of causal relationships may apply.** In some cases, the management of one disorder may result in recovery from the other. For example, in Brown and Schuckit (1988), 42% of people entering inpatient alcohol dependence treatment had a depressive syndrome, but after four weeks of abstinence only 6% were clinically depressed. The reverse is less often true, although the pharmacological treatment of comorbid depression together with an alcohol intervention may sometimes produce improved alcohol outcomes in comparison with a placebo plus alcohol treatment (Cornelius, Salloum Ihsan, Ehler, & Jarrett, 1997). However comorbid disorders often appear to be in a relationship of mutual influence rather than falling neatly into primary vs. secondary categories (Mueser, Drake, & Wallach, 1998), and the relationship between disorders may change over time e.g., depression may trigger alcohol use at some times and the reverse may occur at others (Hodgkins, el-Guebaly, Armstrong, & Dufour, 1999).

8. **Different intervention structures may be necessary in different subgroups.** A relationship of mutual influence implies that comorbidity will often be best treated in a fully integrated manner, and this does appear to be the case in people with psychosis and Substance use Disorder (SUD) (Drake, Mercer-McFadden, Mueser, McHugo, & Bond, 1998). The situation is less clear with anxiety or depression comorbid with substance misuse at this time (Oei & Loveday, 1997; Scott, Gilvarry, & Farrell, 1998).
Comorbidity is under-serviced. One UK survey estimated that even for psychosis and SUD, only 20% of people were offered substance misuse interventions and only 5% were compliant (Weaver et al., 2001). Part of the problem is that many people with comorbidity are not identified because of a lack of systematic screening (Appleby, Dyson, Luchins, & Cohen, 1997). This is discussed in greater detail in Chapter 6. Another issue is that people with comorbidity are sometimes excluded from services that might otherwise assist them (D. J. Kavanagh et al., 2000). In another sense, people with comorbid substance and mental health disorders are not under-serviced; they tend to be higher users of emergency, inpatient and intensive treatment services than people without comorbidity, because of their poorer outcomes (Bartels et al., 1993).

Several implications follow from these points. Firstly, the very large group of people in the community with the most common disorders presents different challenges for service delivery than the groups that form the majority of the people being seen by current treatment services. The former will require relatively inexpensive, highly accessible interventions that focus particularly on anxiety or depression and alcohol, nicotine and cannabis. The latter will demand interventions that can meet the needs of people with severe disorders and that may often be more intensive. Within services there will also be differing needs and emphases. Alcohol and drug services are likely to see people with more severe substance use disorders (especially substance dependence), while mental health services will more often see people with less common but more severe mental health problems such as psychoses (Primm et al., 2000). People with different substance use problems may have differing characteristics from each other, and may even sometimes form different sub-cultural groups.

Collectively, these issues pose considerable demands on interventions for comorbidity. The high comorbidity rates, especially within intensive treatment services or population subgroups at very high risk, highlight the need for the delivery of sound comorbidity interventions to be core business for health services; and facility in their delivery to be a core skill of practitioners in specialist mental health or substance use disorder services. Without these skills, many people will continue to miss receiving appropriate treatment, and will continue to both have poor outcomes and to be disproportionately represented among the users of emergency and other high-cost services. On the other hand, the high population numbers suggest that comorbidity of substance use and mental disorders also needs to be a priority for primary care.

The complex social and legal issues that often arise in connection with comorbidity and the increased risks of serious illness, suicide and symptomatic relapse imply that interventions to address these multiple problems will often be necessary. At the same time, the difficulties often experienced in engagement and retention in treatment and the increased mobility of the more severely affected patients pose a significant challenge for treatment agents.

Overall, it seems that a set of interventions may be required rather than a single intervention format. We will try to encompass this diversity in the remainder of this chapter, but will necessarily not do equal justice to all of the possible intervention variants.
Assessment of comorbidity

Retrospective self-report

Given the high prevalence of comorbidity, especially in treated populations, inquiries about each disorder should routinely be undertaken when the other is detected. Failure to do this will result in a significant proportion of people with comorbidity being missed (Appleby et al., 1997). Sound assessment requires the prior development of rapport with the patient, so that the person feels safe to disclose substance use without fear of rejection or other punitive responses. This general principle is especially important when the person is currently paranoid or is being assessed for involuntary treatment. In people experiencing positive psychotic symptoms, selective attention and other cognitive deficits can present further problems — minimising distraction, using simple sentence construction and repeating questions may assist in maintaining attention. Self-reports that are gathered in sub-optimal conditions may need to be checked against later reports, and either collateral information or biochemical data to examine their accuracy.

Questioning about usual intake tends to result in an underestimation, especially in heavy users (Feunekes, van ‘t Veer, van Staveren, & Kok, 1999; Townshend & Duka, 2002). There are several reasons for this problem. For example, where there is substantial variability of intake from day to day (e.g., based on substance availability), judgments about usual intake are prone to retrospective biases based on beliefs about usual intake and the salience of consumption occasions (Nisbett & Ross, 1980). Respondents can provide an index of the difficulty they experienced in providing a “usual” quantity, frequency estimate as a result of this variability (Hasin & Carpenter, 1998). However the problem can be better addressed in the interview setting by use of the Timeline Followback method (Sobell & Sobell, 1995), which uses situations and events that the person has experienced to cue recall of consumption. This strategy allows the gathering of accurate retrospective data on consumption over recent weeks or months. The method is of course difficult to undertake when the person is acutely thought disordered. If there is a risk of underestimation, examples of high levels of consumption may reduce unwillingness to report these and shift the reporting anchor (Nisbett & Ross, 1980). In the case of alcohol, additional issues include the difficulty in people summing intake of different types of drinks (Feunekes et al., 1999, suggesting a need for separate questioning on each type), and a substantial underestimation of amounts poured at home (Kaskutas & Graves, 2000), emphasising the need for concrete examples (and often, measurement practice) when explaining the size of standard drinks.

The Opiate Treatment Index (OTI, Darke, Ward, Hall, Heather, & Wodak, 1991) is a structured interview which assesses demographic characteristics and treatment history, consumption of 11 classes of drugs during the month preceding interview, as well as HIV risk-taking behaviour, health, social functioning, criminality and psychological comorbidity (General Health Questionnaire GHQ-28, Goldberg & Williams, 1988). The OTI has excellent psychometric properties (Darke, Hall, Wodak, Heather, & Ward, 1992). Baker and colleagues (in press) have used this instrument successfully with people with severe mental disorders on in-patient and outpatient bases. However, as clinical trials with the OTI indicated that there were difficulties with the recent use episodes methodology, Teesson, Gallagher and Ozols (1997) modified the OTI for use among people with severe mental disorders by
expanding the treatment history section to include psychiatric history; referring to drug use over the preceding three months; adding cough syrup and medications for side-effects as two additional drug classes; and eliminating a question concerning conflict with relatives.

Self-monitoring

Daily monitoring of substance use can provide excellent data about intake, and variants can also give information about the situations in which consumption is most likely to occur, the cognitions or activities that precede it or the effects that follow. The accuracy is of course limited by delays before recording and by effects of intoxication upon memory. It can be difficult in some social settings to take out a monitoring form and record use at the time, but surreptitious recording strategies (e.g., moving a coin from one pocket to another) and noticing the products of use (e.g., empty bottles, cigarette ends) can aid later recall. Self-monitoring may also have reactive effects on intake (Kavanagh, Sitharthan, Spilsbury, & Vignaendra, 1999), especially where the person records their consumption against a contracted intake goal. However as in other contexts, systematic completion of the monitoring on a daily basis can be an onerous task in itself, and adherence to the self-monitoring is a significant clinical challenge. In comorbid populations, there is little data on adherence with self-monitoring, but in severe mental disorders it may prove to be especially difficult to obtain daily data. Devices to remind the person to record self-monitoring data have been successfully used in smoking research (Shiffman et al., 1997), and may assist in the collection of data in comorbid populations as well.

Self-report screening tests for substance use disorders

Screening for significant substance abuse or dependence in mild mental disorders can usefully apply standard screening tests (Dawe, Loxton, Hides, Kavanagh, & Mattick, in press). However in more severe disorders, where only a small proportion of comorbid patients have high levels of physical dependence (D. J. Kavanagh et al., 1999), some of these measures are insufficiently sensitive to detect substance abuse, and others require a high degree of intact cognitive functioning that may not be present. Thus, measures such as the Addiction Severity Index (ASI), (McLellan, Luborsky, Woody, & O’Brien, 1980), Michigan Alcoholism Screening Test (MAST), (Selzer, 1971) and the CAGE alcohol questions (Ewing, 1984) perform relatively poorly in severe mental disorders (Carey, Cocco, & Correia, 1997; Wolford et al., 1999; Zanis, McLellan, & Corse, 1997). In contrast, the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, Fuente, & Grant, 1993), which is a sensitive measure of both milder and more severe forms of alcohol misuse in the general population, is also appropriate for use in populations with severe mental illness (D. J. Kavanagh et al., 1999; Maisto, Carey, Carey, Gordon, & Gleason, 2000; Seinen, Dawe, Kavanagh, & Bahr, 2000). The Severity of Dependence Scale (SDS, D. J. Kavanagh et al., 1999) also performs well in identifying substance use disorders in those with severe mental illness.

Some screening measures have been especially designed for this population. In the US context, the Dartmouth Assessment of Lifestyle Instrument (DALI), (Rosenberg et al., 1998) has demonstrated high levels of sensitivity and specificity to alcohol, cannabis or cocaine abuse within in-patients with severe mental disorders. Locally, the DrugCheck Problem List (D. J. Kavanagh et al., 1999) has also shown a high rate of correct classification in relation to full interview assessment.
Biochemical assays

Standard biochemical assays for substance use can assist in validating self-reports. However the accuracy of these assays is limited by the duration over which the substance and its metabolites may be accurately detected and by the detection levels that are set in the analyses. Breath analysis gives a particularly short window for detection of alcohol or cigarette use (e.g., carbon monoxide from cigarette smoke can be reliably detected over about 6 hours). In most cases, urine samples will detect the parent drug or its metabolites within 48 hours of last use of the drug. Sometimes an associated substance may be detected by biochemical measures over a longer period — for example, salivary thiocyanate (reflecting cyanide present in cigarette smoke) has a half-life of about 9.5 days. Hair samples allow analysis of substance use over several weeks by capture of the substance within the growing hair, and this method is readily used even in severe mental disorders (McPhillips et al., 1997). However hair analysis has not as yet become a standard clinical procedure.

Collateral information

Data from other informants may also be used for validation of the self-reports, although collateral informants are themselves prone to biased reporting, including minimising or exaggerating current use, or being affected by beliefs about the person and their intake (e.g., that their substance use will not change). They are also likely to be influenced by salient past events (e.g., unusually high levels of use or the theft of personal items, Nisbett & Ross, 1980) and misattribution of symptoms (mistaking symptoms of mental illness for evidence of substance use and vice versa). In addition, collaterals may not have full information about the substance use, especially if the substance use is being concealed. They may be more likely to accurately report substance use when they are in close contact with the person (Carey & Simons, 2000).

Biochemical assays and collateral data not only attest to the validity of self-reports, they can also encourage accuracy in self-reports when the person is aware of the check being in place (the ‘bogus pipeline effect’, Aguinis, Pierce, & Quigley, 1995). In practice however, self-reports are usually reliable as long as incentives for accurate reporting are in place. The addition of biochemical assays or collateral assessments does not usually add substantially to this accuracy (Rankin, 1990), even in comorbid substance use and severe mental disorders (Carey & Simons, 2000). In an urban US sample of psychiatric patients attending an emergency department, a self-reported history of intake over the previous three days was more likely to result in reported use of alcohol and cannabis than a urine screen (Perrone, De Roos, Jayaraman, & Hollander, 2001). The urine screen did not show significantly more identified cases than the history on any substance.

Screening for mental disorders in people with substance use disorders

Screening for mental disorders in people with substance use disorders may use standard tests that have been developed for the general population (Dawe et al., in press). The General Health Questionnaire (GHQ), (Goldberg & Williams, 1988) is a self-administered questionnaire that provides a measure of generalised distress, with the 12-item version performing about as well in detecting disorder as the 28-item version (Goldberg, Gater, Sartorius, Ustun, & et al., 1997). An alternative to the GHQ is the Self-Reporting Questionnaire (SRQ), (Beusenberg & Orley, 1994),
which has been validated internationally as a screen for psychiatric disorder. Versions have been examined with 20 or 24 items. The Symptom Check List-90-Revised (SCL-90-R), (Derogatis, 1994) — also a self-report measure — displays high sensitivity and moderate specificity for anxiety and depressive disorders in patients with substance misuse, and is better able to identify these disorders than the Addiction Severity Index (Franken & Hendriks, 1999). It is only available for use under the supervision of a clinical psychologist. Brief forms of the scale such as the Brief Symptom Inventory (BSI, Derogatis & Meilisaratos, 1983) show high correlations with the full SCL-90-R.

The Brief Psychiatric Rating Scale (BPRS), (Lukoff, Liberman, & Nuechterlein, 1986; Overall & Gorham, 1962) is a clinician-completed scale providing both screening and detection of changes in symptoms. It has been commonly used in studies on comorbid populations as a criterion measure (e.g., Dixon, Haas, Weiden, Sweeney, & Frances, 1991; Warner et al., 1994). The scale takes about 20 minutes to complete, and includes both standard questions and observational ratings. Detailed descriptions have been published (Ventura, Green, Shaner, & Liberman, 1993; Woerner, Mannuzza, & Kane, 1988) to assist in anchoring ratings. The Positive and Negative Syndrome Scale (PANSS, Kay, Fiszbein, & Opler, 1987) is an adaptation of the BPRS that was designed to provide scores on positive and negative syndromes of schizophrenia and general psychopathology. Both scales require training and calibration of interviewers to ensure reliability and validity of the assessments.

**Assessment of psychiatric symptoms in people with substance use disorders**

The Psychiatric Diagnostic Screening Questionnaire (PDSQ), (M. Zimmerman & J.I. Mattia, 2001; M. Zimmerman & J. I. Mattia, 2001) is a recently developed self-report screening instrument that requires approximately 20 minutes to complete and produces predictions for a broad range of 13 common DSM-IV disorders, including alcohol and drug use disorders, as well as major depression, bipolar disorder, post-traumatic stress disorder (PTSD), and psychosis. Studies on the PDSQ have indicated good test-retest reliability, and high sensitivity, specificity, and predictive value when compared with structured clinical interviews. Considering the ease of administration, the strong association with structured clinical interviews, and experience with the scale reported in several thousand people, the PDSQ would appear to have broad applicability in mental health, substance abuse, or primary health care settings.

**Assessment of insight**

Insight is one of the most consistently reported predictors of compliance with psychiatric treatment. The Schedule for the Assessment of Insight (SAI), (David, 1990) is a semi-structured interview that measures three aspects of insight: willingness to accept that one has an illness; ability to correctly label psychotic experiences; and acceptance of treatment. Scores on this scale are expressed as a percentage of maximum insight. Kemp and colleagues (1998) reported a significant difference in scores on this measure as a function of compliance therapy, based on motivational interviewing and cognitive approaches to psychotic symptoms and supportive counselling among 74 acutely psychotic in-patients. The Insight Scale for Psychosis, (Birchwood et al., 1994) was shown to have adequate psychometric properties among 133 subjects with varying non-affective psychoses and is suggested...
as a quick and acceptable self-report measure that is reliable, valid, and sensitive to individual difference and change.

Readiness to change substance use or to accept treatment does not necessarily require full insight. If efforts are concentrated on agreement with a diagnosis or even a full understanding of symptoms, a failure to obtain that agreement often becomes a block to engagement. Furthermore, the acceptance of disorder often produces dysphoria and a loss of self-efficacy that can damage commitment to change. Understanding can initially be partial, as long as it is sufficient to motivate some change. Assistance can then focus on the issues that are effectively motivating the person.

**Assessment strategies covering both mental disorders and substance use disorders**

A number of standardised diagnostic interviews are available to assess both substance use disorders and other mental disorders in a single assessment. These include the Composite International Diagnostic Interview (CIDI, Semler et al., 1987), the Structured Clinical Interview for DSM-IV (SCID, First, Spitzer, Gibbon, Williams, & Benjamin, 1994; Spitzer, Williams, Gibbon, & First, 1992), and the Schedules for Clinical Assessment in Neuropsychiatry (SCAN, Wing et al., 1990). The full interviews take some time to administer and score, although segments can be selected for specific focus (e.g., substance use, anxiety disorders). A personality disorders segment of SCID is also available (Structured Clinical Interview for DSM-IV Axis II Personality Disorders—SCID-II, First et al., 1994). All of the structured interviews require training and calibration on the conduct of the interviews and the use of interviewer ratings. The CIDI is available in a computerised, self-administered version (CIDI-Auto), (Peters & Andrews, 1995), and comparable results on anxiety and depression are available in that format (Peters, Clarke, & Carroll, 1999). Some recent data suggests that there may be problems with the concordance of diagnoses derived from CIDI and SCAN interviews given sequentially (Brugha, Jenkins, Taub, Meltzer, & Bebbington, 2001).

The Primary Care Evaluation of Mental Disorders (PRIME-MD), (Spitzer et al., 1994) is a questionnaire and interview instrument designed for detection of psychiatric or substance use disorders within primary care settings. A version of the interview can be administered over the telephone using interactive voice response technology (Kobak et al., 1997). PRIME-MD found high sensitivity and specificity in relation to the Structured Clinical Interview for DSM-IV (SCID). The computer-assisted version of PRIME provides similar results to the face-to-face interview, except that more patients report alcohol-related problems on the computerised version (Kobak et al., 1997).

Cognitive dysfunction is an issue in both mental illness and substance use disorders. The Mini-Mental State Examination (MMSE), (Folstein, Folstein, & McHugo, 1975) is a helpful quick screen for cognitive dysfunction that does not require psychological training (Mattick & Jarvis, 1993). Testing should not be conducted during detoxification and only when the client is sober Mattick & Jarvis (1993); and Saunders & Robinson, (in press) recommended that a small cadre of staff on each alcohol and other drug agency be trained in the MMSE as it assists in recognising the presence of mental health symptoms and improves ability to communicate with mental health staff.
Distinguishing true comorbidity from secondary effects

At initial presentations, it is often difficult to distinguish between effects of substance use and psychiatric symptoms. For example, symptoms of anxiety or depression can arise during intoxication or withdrawal from a variety of substances. Similarly, there are few differences between the acute symptoms of schizophrenia and those from a transient substance-induced psychosis. Some diagnostic issues may be clarified by taking a careful history from the patient or other informants and by tracking the resolution of symptoms. For example, a stimulant-induced psychosis usually resolves within days of ceasing the stimulants (Schuckit, 2000). However the basis of current symptoms can often be unclear in cases where both problems have been present at times in the past.

In some cases the basis of a specific symptom may be of little immediate importance for its management. The immediate pharmacological treatment may often be identical, although often shorter in duration when psychiatric symptoms are primarily due to substance use. Where both substance use and mental disorders are current, the psychological management may often need to address both disorders rather than be confined to the trigger for symptoms on this occasion (K. T. Mueser et al., 1998). Detecting current causal influences does have importance even in cases where much of the treatment is unchanged, since it allows better prediction of outcomes (e.g., if increased symptoms have repeatedly been associated with greater substance use, this may well recur at the next exacerbation). However the identification of the causal influences is often difficult or impossible to disentangle, and delaying treatment of one or both disorders in order to determine one’s “primacy” or the instigating trigger/s can have deleterious effects on both disorders. In consequence, the detection of causal influences is generally conducted in the context of attempting to treat both disorders.

Assessment of readiness to change

Prochaska, DiClemente and colleagues (e.g., 1986; 1992) have proposed a transtheoretical model that can be used to assess readiness to change and allow appropriate tailoring of interventions. During ‘pre-contemplation’ the person is not considering change, and is either unaware of the benefits of change or is contented with their behaviour. At ‘contemplation’, the person is ambivalent about change but has not determined to change. During ‘preparation’, the person prepares to take action. The ‘action’ stage is characterised by active attempts to change. During the ‘maintenance’ stage the person focuses on maintaining the changes made. People who are in earlier stages of change tend to respond to action-oriented strategies with resistance. Motivational interviewing may help to prepare the person for change, nudging them from pre-contemplation to contemplation and preparation. It can also be employed to encourage optimism and self-efficacy in the action and maintenance stages of change (Miller & Rollnick, 2002).

How a person with comorbid psychosis and substance misuse fares in treatment depends on their readiness to acknowledge both disorders (Smyth, 1996), adhere to medication (Kemp, Hayward, Applewhaite, Everitt, & David, 1996; 1998), and participate in non-pharmacological interventions such as vocational rehabilitation programs (Rogers et al., 2001). Their readiness to change in each of these areas should be assessed. For example, insight into illness will affect recognition of the role
of medication and the potential for substance use to exacerbate symptoms and interfere with effectiveness of medication. Stage of change should be assessed early on in treatment and reassessed regularly, providing opportunities for early detection and treatment matching (Ziedonis & Trudeau, 1997). Ongoing stage of change assessment over the longer-term is also important because participation in treatment for mental or substance use disorders, especially when coerced, may lead to a return to previous behaviour when pressure to comply has been lifted (Smyth, 1996).

**Readiness to change alcohol and other drug use**

Although the utility of self-report measures of readiness to change substance use among people with psychosis and substance use disorders has been questioned (Addington, el-Guebaly, Duchak, & Hodgins, 1999), others have used such measures successfully. Oral administration of questionnaires may be helpful (e.g., Carey, Purnine, Maisto, & Carey, 2001). Velasquez, Carbonari and DiClemente (1999) measured stages of change, decisional balance, temptation and self-efficacy among 132 alcohol dependent people in a public mental health clinic’s outpatient dual diagnosis program. Primary diagnoses for the sample comprised depression (41%), schizophrenia (30%), bipolar disorder (16%), psychosis (7%), mood disorder (3%), anxiety (2%) and adjustment disorder (1%). The Readiness to Change Scale of the 28-item University of Rhode Island Change Assessment Scale-Alcohol (URICA-A, DiClemente & Hughes, 1990) was used to assess readiness to change drinking. Cronbach’s alpha was 0.91 for the URICA measure, indicating that presence of an Axis 1 mental disorder may not be associated with poor internal consistency of instruments designed to measure readiness to change substance use, although test-retest reliability was not assessed (Carey et al., 2001).

Carey and colleagues (2001) subsequently evaluated the psychometric adequacy of three instruments designed to assess readiness to change substance misuse among 84 people with severe and persistent mental illness. The instruments were the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES, Miller & Tonigan, 1996), the Decisional Balance Scale (DBS), (King & DiClemente, 1993), and the Alcohol and Drug Consequences Questionnaire (ADCQ, Cunningham, Sobell, Gavin, Sobell, & Breslin, 1997). All three instruments demonstrated good internal consistency, reliability and validity. Carey and colleagues concluded that the use of self-report instruments of readiness to change can be justified among people with severe mental illness and substance use disorders, and that such measures may also be usefully included in outcome assessments.

The 12-item Readiness to Change Questionnaire (RTC), (Rollnick, Heather, Gold, & Hall, 1992) has been employed in several studies among people with co-occurring psychiatric and substance use disorders (e.g., Blume & Marlatt, 2000; Blume & Schmaling, 1997; Blume, Schmaling, & Marlatt, 2001; Claus, Mannen, & Schicht, 1999). This questionnaire yields three scores, Pre-contemplation, Contemplation and Action, and a total score that provides a measure of overall motivation to change. It has been found to have satisfactory internal consistency and test-retest reliability (Rollnick et al., 1992) and to have predictive validity for drinking rates among people without comorbid problems (Heather, Rollnick, & Bell, 1993).

Some brief measures of the stages of change for substance use appear to be reliable and valid in comorbid populations, particularly when they are orally administered.
However, further research in this area is required to establish the psychometric properties of these instruments among people with comorbid disorders.

**Readiness for treatment and treatment adherence**

There have been few studies examining readiness for treatment among people with comorbid mental and substance use disorders. The Substance Abuse Treatment Scale (SATS), (McHugo, Drake, Burton, & Ackerson, 1995) is a clinician-rated scale assessing stage of change of substance abuse treatment during the past six months among people with severe mental illness and SUD. Psychometric data were derived from seven community mental health centres over a three-year period from clients, case managers, families and mental health and non-mental health treatment and service providers. The SATS has adequate content, construct and criterion validity and adequate test-retest and inter-rater reliability (Teesson, Clement, Copeland, Conroy, & Reid, 2000).

Rogers and colleagues (2001) assessed readiness for treatment using the Change Assessment Scale (CAS), (McConnaughy, Prochaska, & Velicer, 1983), a 32-item questionnaire, among 163 comorbid individuals, primarily with psychotic disorder, major depression or bipolar disorder. The instrument was administered at baseline and 24 months after entry to the study. Participants were asked to consider their vocational or employment situation as they completed the items. Rogers et al. reported that the contemplation, action and maintenance sub-scales achieved the satisfactory level of internal consistency found in the non-comorbid original sample. However, the pre-contemplation scale did not achieve this level of internal consistency and did not correlate negatively with the maintenance sub-scale. The authors suggested that people with comorbid disorders may be less aware of their need to change and remain more entrenched at the pre-contemplation stage. Factor analysis revealed considerable overlap between the contemplation and action stages. They suggested that past work failures may have led to more ambivalent attitudes about attempting vocational changes. The CAS was able to predict early attrition in that there were significant differences between dropouts and completers. However, the CAS was not able to predict later behaviour change well and the authors suggested that readiness to change may not be a stable phenomenon, making it difficult to use as a predictor of long-term change. The authors suggested that further studies of the instrument’s psychometric properties be undertaken and suggested it may be a reasonable predictor of proximal rather than long-term change.

DeLeon (2001) has suggested that as client motivation and readiness for treatment have been shown to be important in treatment retention, brief, reliable, valid and user-friendly questionnaires should be used to assess these areas. He suggested using the Texas Christian University scales (Joe, Simpson & Broome, 1998) and/or the Circumstance, Motivation, and Readiness (CMR) scales (DeLeon, Melnick, Kressel, & Jainchill, 1994), measuring external motivation, internal motivation and readiness for treatment. No data was reported on their use among people with comorbid mental and substance use disorders.

The Attitudes to Medication Questionnaire (ATM) is a 14-item semi-structured interview designed to measure patients’ attitudes to psychotropic drugs, developed by Hayward et al. (1995). Patients are asked about their feelings about their medication, the role of staff in dispensing their medication, and their plans for the
future. Higher scores indicate more positive attitudes towards medication. The test-retest reliability of this measure was 0.77 in a small pilot study. Kemp et al. (1998) have reported a treatment effect for scores on this measure.

Compliance with medication is difficult to measure. An indirect measure of compliance used by Kemp et al. was sensitive to differences between control and treatment groups. This measure correlated highly with attitudes to medication. Estimates of compliance were rated on a Likert scale (1=complete refusal, 7=active participation) by at least two people involved in the care of participants (eg., health practitioners, relatives) and converted into a composite compliance score. The Medication Adherence Rating Scale (MARS), (Thompson, Kulkarni, & Sergejew, 2000), a refinement of the Drug Attitude Inventory (DAI), (Hogan, Awad, & Eastwood, 1983), was administered to 66 people, the majority diagnosed with schizophrenia. Lithium levels and carer ratings were also recorded to verify compliance when available. Results indicated that the inventory appeared to be a reliable and valid measure of compliance to psychoactive medications.

Importance, confidence and readiness

Rollnick, Mason and Butler (1999) have described the use of open-ended questions to assess importance, confidence and readiness to change. They suggest that the following line of questioning may be helpful: “How do you feel at the moment about [change]? How important is it to you personally to [change]? If zero was ‘not important’ and 10 was ‘very important’, what number would you give yourself?” [p 63]. Similar questions can be asked of confidence about behaviour change and overall readiness to change. Rollnick et al. recommend that motivational interviewing may be indicated when a person indicates low importance, whilst high importance and low confidence may indicate training the person in strategies to enhance confidence and ability to change. Assessment of importance, confidence and readiness in this way may be an efficient and non-intrusive tool for the concurrent assessment of stage of change for mental and substance use disorders; adherence to medication; and participation in non-pharmacological interventions. No evidence on the specific utility of this assessment in comorbid populations is available at present.

Summary and recommendations

The selection of assessment instruments will depend on the context and the assessment objectives. Standard screening instruments for substance use disorders and for mental disorders should routinely be used in situations where staffing time or expertise prohibit the universal application of more extended assessments. Without this routine screening, cases of comorbidity will be missed. Procedures also need to be in place to alert staff to conduct additional assessment for comorbidity in positively screened cases. The AUDIT for alcohol and the SDS, DALI and DrugCheck for other drugs appear to be performing well as screening instruments. On current evidence we have no reason to doubt the validity of standard instruments such as BPRS for the assessment of psychiatric symptoms within people with substance use disorders, although further data specifically addressing their use by substance treatment staff is required. Current data on PRIME-MD offers effective mental disorder and substance use disorder screening in primary care, and the voice-activated telephone method may provide significant cost advantages over a live interview approach.
Ideally, a standardised interview should be used to validate diagnoses, and this will be especially important in research. With appropriate training, the SCID and SCAN perform particularly well. The computerised CIDI may also assist with diagnosis, but current data suggests that such assessment should be supplemented by observation and checking of responses by trained and experienced clinicians.

Retrospective self-reports of substance intake appear to provide valid estimates when there are incentives for accuracy and where a Timeline FollowBack technique is used to assist recall. Knowledge that collateral information and/or biochemical assays are being collected may assist in maximising accuracy. The accuracy of collateral reports requires observational access and is subject to the same potential retrospection and biasing constraints as self-report. The utility of biochemical assays is subject to the speed of elimination of the substance and its metabolites and to cost constraints, but should be considered a standard procedure at in-patient admission and at random intervals during treatment. Self-monitoring of substances and symptoms presents challenges in people with significant cognitive impairment or high negative symptoms, but variants such as brief telephone interviews can assist. Assessments of insight such as the SAI or ISP, and of mental status using the MMSE provide important additional information.

It appears that readiness to change substance use may be reliably assessed with measures such as the RTC, SOCRATES, DBS and ADCQ, although further data is needed. Further work on the development of assessments of readiness for treatment within comorbid populations is required before other specific recommendations can be made. Assessment of readiness to change may present particular challenges with involuntary patients, where there is a risk of over-reporting intentions in order to obtain desired changes in treatment status.

This field is developing very quickly. Over the next few years, we can expect a variety of psychometrically sound assessment instruments and protocols to emerge for use in specific contexts. Cost-effective administration procedures including computer-based methods can also be expected to develop further, although in comorbid populations with cognitive deficits or limited insight we may anticipate that live interview assessment will still be needed.

Accuracy of assessment relies on the development of rapport and trust, and this will be one reason why we expect that live assessment will continue to have an important role. As in other populations, assessment and treatment necessarily come together in the development of this rapport. Aspects of the following section are therefore also of key importance in the assessment process.

**Interventions for comorbidity**

The literature on the management of comorbidity is currently very sparse, and much of it is of poor methodological quality. The current Cochrane review (Ley, Jeffrey, McLaren, & Siegfried, 2001) concludes that no effective treatments have been established (i.e., no standardised interventions for comorbid disorders have been shown in multiple studies to improve outcome. It recommends additional controlled trials. We concur with this assessment, and would extend it to include psychological management of non-psychotic disorders that co-occur with substance use disorders. However there are some statements about intervention that can be made with varying degrees of confidence.
Integration of treatment

It is tempting to address comorbid problems by having specialists from mental health and alcohol and other drug services to each address the combined problem. This is both consistent with the growth of separate service systems and with the specialist model of medical care. There are two possible ways in which this might be done: either the problems can be treated in a parallel fashion, or they may be addressed sequentially. If one disorder is considered secondary to the other, the “primary” disorder is sometimes treated first, with treatment only being given for the secondary disorder if it does not remit.

The use of parallel or sequential treatment models either assumes an absence of close, mutual relationships between the disorders or the presence of a unidirectional relationship between a primary and secondary disorder. As already noted, the treatment of one disorder can sometimes result in remission of the other (Brown & Schuckit, 1988). However such recovery may not necessarily imply a simple primary, secondary relationship. For example, the treatment (or expectancies of its effects) may have effects on both disorders. Furthermore, the existence of a causal influence in one direction does not preclude the possibility of the reverse influence, or of the causal relationships changing over time (Hodgkins et al., 1999).

The close mutual relationships that appear the norm in comorbidity of severe mental disorders and substance use disorders (Mueser et al., 1992), produce significant problems for parallel or sequential treatment models (Mueser, Drake, & Noordsy, 1998). At the very least, the timing and nature of interventions need to take account of the status of both disorders. The intervention agents need to be in very close communication — a level of communication that is difficult with separate services. However this is only part of the problem. The interlacing of the problems is illustrated by the common use of substances to deal with medication side-effects, where those side-effects are being exacerbated by the high dosages that are being used to deal with substance-induced symptoms. A treatment for the substance use may need to comprise a combination of reduced medication dosage, effective medical and psychological strategies for symptom control, together with a substance use treatment that is compatible with other psychiatric symptoms that at times may only be partially controlled. The management plan as a whole needs to avoid over-taxing the patient, or increasing either symptoms or personal risk. These requirements are very difficult to fulfil in an environment with separate services for substance misuse and mental illness, where each has evolved differing service priorities and treatment philosophies. Many patients miss out on effective treatment for one or both disorders, staff in each service often have difficulty obtaining consultations and timely referrals, and joint case conferences are rare (D. J. Kavanagh et al., 2000). Jointly managed patients often face conflicting advice, and interventions that are at odds (e.g., confrontational interventions for substance use that exacerbate psychiatric symptoms, or increased dosage of antipsychotic medication at the same time as a quit-smoking attempt).

By the early 1990s there was a widespread awareness that parallel and sequential approaches to substance use disorders comorbid with severe mental disorders were relatively ineffective (Polcin, 1992; Ridgely, Goldman, & Willenbring, 1990). Integrated models of treatment were established (Drake, Antosca, Noordsy, Bartels, & Osher, 1991; Minkoff, 1989; Rosenthal, Hellerstein, & Miner, 1992), in which the
same clinician treated both disorders simultaneously. Integrated treatments for substance use disorders and severe mental disorders tend to have superior outcomes to standard treatment and to parallel or sequential approaches (Carmichael et al., 1998; Drake, Yovetich, Bebout, Harris, & McHugo, 1997; Godley, Hoewing-Roberson, & Godley, 1994; Herman et al., 2000).

Despite the high prevalence of anxiety and depression comorbid with substance misuse, we have very little evidence on their management. There are still commentators who argue in favour of parallel (Oei & Loveday, 1997), or sequential treatment (Scott et al., 1998). In some disorders such as phobias that have a relatively low risk of recurrence, a treatment that deals with mutual influences may be less critical to outcomes than in disorders that are more subject to recurrence.

A sample study illustrates some of the difficulties in interpreting the current evidence. In one of the few controlled trials on psychological management of comorbid non-psychotic disorders, Randall et al., (2001) compared the impact of alcohol treatment alone, and alcohol plus social phobia treatments within the same sessions. Participants were 93 people with current alcohol dependence and social phobia who completed at least one treatment session and the post-treatment assessment. All treatment was delivered individually, and the combined treatment involved somewhat more contact time (18 hours) than alcohol treatment alone (12 hours). Despite the additional content and treatment time, the combined group had an equivalent degree of improvement in social anxiety and depression, and actually had worse alcohol outcomes than the alcohol-only group. Furthermore, improvements in social anxiety and alcohol measures were unrelated, suggesting that the comorbid disorders in this sample may not have been closely interlinked over the course of the treatment.

At first glance, this study may be considered to argue against integrated treatment in anxiety disorders and alcohol dependence. However, as the authors acknowledge, the combined treatment was better described as adjunctive rather than integrated, since the content of each treatment was not closely related to the other. In fact, the addition of a second set of apparently unrelated learning and homework tasks may have made it harder for either treatment to have full effect. The social phobia treatment also appears to have been sub-optimal: while based on empirically validated procedures, it omitted in vivo practice within sessions (either outside the therapy room or involving a therapy group) and it included relatively weak versions of some other procedures (e.g., only one relaxation training session). If a more effective and more closely integrated form of social phobia treatment had been included, it may have both had more substantial effect and have triggered a greater association between the disorders. The study does not therefore provide a clear test of the integration hypothesis.

In most studies, the psychological treatment of alcohol misuse (Lennox, Scott-Lennox, & Bohlig, 1993; Project MATCH Research Team, 1997) and the pharmacological management of depression (Worthington et al., 1996) have both tended to be less effective when conducted in the presence of the other disorder than when the comorbidity is not present. Where both depression and substance misuse are addressed in an integrated treatment, better outcomes may be observed (Charney, Parasherakis, & Gill, 2001). Even in cases where the depression is not clearly independent of the substance use disorder, treatment of the depressive symptoms
can reduce their severity and duration in treatment, and may also assist in prevention of relapse to substance misuse (Mason, Kocsis, Ritvo, & Cutler, 1996).

A significant problem with approaches that neglect the presence of a non-psychotic disorder in treatment for substance use disorders is that some people may be more vulnerable to subsequent relapse. However, an additional relapse vulnerability in substance-misusing samples with comorbid anxiety or depressive symptoms at the time of treatment will not always occur (R. A. Brown et al., 1998; Sellman & Joyce, 1996). This situation is most likely where the psychiatric symptoms are consequences of substance use, and there is little or no influence of mental disorder on the substance use disorder. However the risk is that in cases where there is potential for a causal influence of increased psychiatric symptoms upon substance misuse, inadequate treatment of the mental disorder or of its link with the substance misuse, will mean that a recurrence of psychiatric symptoms renders the person vulnerable to relapse in substance use (Brown, Stout, & Gannon-Rowley, 1998). An alternative is to train participants to maintain their self-management of substance (especially alcohol) use in the face of the anxiety or dysphoria.

Since people with comorbid anxiety or depression tend to be higher functioning than people with psychotic disorders, the treatment of comorbidity may not always need to be as extensive as in comorbid substance misuse and psychosis. For example, simply drawing attention to alcohol misuse by initial assessment and ongoing alcohol monitoring may sometimes be sufficient to trigger self-management of the problem in cases of panic disorder where alcohol dependence is low (Lehman, Brown, & Barlow, 1998). However, in depression there is often a need for more extensive intervention for the comorbidity. Engagement often needs to overcome low self-efficacy and pessimism about positive outcome (Kavanagh, 1992), and this process needs to be practised so it can be used as a self-management strategy for maintenance or re-engagement after treatment has finished. Where substances have been used as a short-term method of mood enhancement during dysphoria, attention to strategies to minimise this risk may be required, including cognitive therapy to address unrealistically positive substance expectancies. Conversely, training to deal with lapses in substance use may need to include additional work on the reduction of associated self-blame and on the retention of a focus on problem solving to prevent recurrence. A treatment that focuses on strategies that will benefit both the depression and the substance misuse may be particularly useful — such as encouragement to engage in non-substance-related, enjoyable activities, positive self-statements to combat low self-esteem related to depression and vulnerability to substance use, or an emphasis on problem solving and social support in response to setbacks in either disorder.

**Some common features of integrated programs**

Treatment for comorbidity is often divided into stages that are derived from Prochaska and DiClemente’s (1983) concept of stages of change as a guide to treatment planning (Osher & Kofoed, 1989). The stages are described as:

1. engagement in a working alliance;
2. persuasion;
3. active treatment; and
4. relapse prevention.
Movement through the stages is defined behaviourally in terms of the person’s response. Separate groups may sometimes be offered to cater for the different needs of people at each stage. Common elements in programs for severe mental disorders tend to include assertive outreach, comprehensive services to address the full range of patient needs, the provision of safe and protective living environments, and a long-term supportive commitment (K T Mueser et al., 1998).

**Fostering engagement and motivation to change**

**Rationale**

As with substance use disorders within the general population, a major challenge in comorbid populations is engaging patients in an attempt to change their substance use. Some treatment services, particularly in the US, have even required a period of abstinence before entry to the program, and use expulsion from the program as a sanction for lapses during the program. It seems odd that a program that has control of substance use as its therapeutic goal should have the partial achievement of this goal as a criterion for entry, or that failure to achieve or maintain this goal should be attributed solely to the participants. Other programs have tended to wait for people to reach a crisis point that pushes them into action rather than attempting to engage them before the often permanent damage associated with such crises has been sustained.

We argue that these approaches abrogate responsibility on the part of the treatment service towards engagement and display a lack of empathy towards patients in relation to the difficulty many have in dealing with substance misuse. An inability to initially succeed at the control of substance use problems does not necessarily imply a lack of commitment: successive attempts are commonly needed before smokers from the general population can permanently quit (US Department of Health and Human Services, 1994). We need to recognise this reality and reward intermediate success. There is however one appropriate feature of approaches that insist on commitment before entry: if people with substance use disorders are not engaged and ready to change their substance use, other interventions may often be of little effect, since they are used half-heartedly by the person if at all. This appears to apply as much to people with comorbidity as to those with substance use disorders alone (Bellack & DiClemente, 1999). In other populations with substance use disorders, motivational enhancement procedures including motivational interviewing have been found to assist in engagement and goal selection (Miller & Rollnick, 2002).

**Motivational interviewing**

Rollnick and Miller (1995) define motivational interviewing as a “directive, client-centred counselling style for eliciting behaviour change by helping clients to explore and resolve ambivalence” (p. 326). Motivational interviewing emphasises that the person’s readiness to change is a process that involves the resolution of internal conflict and that this process can be facilitated within a context where it is safe to conduct searching appraisals and confront one’s own ambivalence. The therapeutic relationship involves a collaboration in discovering the alternatives that will maximise payoffs for the individual rather than a context where a therapist attempts to persuade or confront the person. Key components of motivational interviewing involve encouraging the person to examine the benefits and costs of their substance misuse and eliciting cognitive dissonance between the substance use and other goals.
Information is given in response to the person’s questions, but behaviour change is not seen as requiring full knowledge of substances and their effects. An emphasis is placed on the emotional response of the person to aspects of their substance use rather than on intellectual knowledge. The procedures are integrated with assessment. For example, the lifeline technique, in which the important life events are charted against the course of psychiatric illness and then substance use history, enables the examination of the interrelationship of substance use, mental disorder and psychosocial problems (Smyth, 1996). In cases where the person is unwilling to consider changing their substance use at the moment, the therapist encourages them to consider what would need to happen before they would contemplate such change. A positive outcome may involve the person developing their goals for changing their substance use, but also includes the progressive understanding of the impacts of their substance use and the development of a relationship in which they will feel sufficiently safe to discuss the issue again in the future. Motivational interviewing can be conducted individually or in groups, where people with substance use disorders share their experiences with substance use (Smyth, 1996; Van Horn & Bux, 2001).

**Evidence on motivational interviewing as a stand-alone treatment**

In general populations, a single session of a motivational intervention has been shown to have a powerful effect on alcohol abuse, producing about double the rate of moderation of drinking compared to no intervention (Wilk, Jensen, & Havighurst, 1997). Brief interventions for alcohol misuse currently are supported by 68% of the 31 published trials (Miller & Wilbourne, 2002). They are typically as effective as much more extended interventions (Moyer, Finney, Swearingen, & Vergun, 2002). Some of the studies on brief intervention have simply used information and advice about alcohol use (Fleming, Barry, Manwell, Johnson, & London, 1997); others have used motivational interviewing (Monti et al., 1999). Motivational interviewing itself is supported by 71% of the 17 available trials (Miller & Wilbourne, 2002).

Little research has been conducted on brief interventions incorporating motivational interviewing as the primary intervention strategy in people with severe comorbid psychiatric conditions. A pilot study by Kavanagh et al. (in submission) randomly allocated 25 in-patients at their first to third episode of psychosis to standard care or to a brief intervention (Start Over and Survive, SOS), comparing it with routine care. All SOS participants who received at least one session of motivational interviewing reported less substance use at six months. This compared with 58% in routine care. However nearly 38% of patients allocated to SOS did not proceed beyond the initial rapport building, highlighting the continuing challenge of initial engagement in sessions with this population. The study employed blind raters for the final assessment, which checked on all previous reports. Its results beyond the six months assessment point are subject to a greater dropout from assessments by participants in the control condition, although this result may also be interpreted as reflecting a greater engagement in substance-related assessment in the SOS group. A replication in a study with larger numbers and equalised contact time is required, and a study along those lines by the research group is nearing completion.

Hulse & Tait, (2002) have reported the results of a randomised controlled trial in which 120 psychiatric in-patients in a general hospital setting who scored at least eight on the AUDIT but less than 30 on the SADQ, were randomised either to brief
motivational interviewing or education. At the six-month follow-up, the motivational interviewing group reported a significantly greater reduction in weekly consumption of alcohol and a greater proportion were improved compared to the education group. Hulse and Tait recommended that screening for alcohol consumption and brief interventions should be routinely conducted in psychiatric units.

Motivational interviewing can even be effective in comorbid individuals who are currently experiencing a psychotic episode (Kavanagh et al., in submission). Timing the intervention during an episode may actually assist the motivational process, by offering compelling evidence of negative effects from substance use (Walitzer, Dermen, & Connors, 1999). Having the person present in an in-patient setting also has the advantage that it is easier to keep track of the person and ensure that sessions do occur (a problem that otherwise can be significant in patients who are itinerant or who are leading chaotic and unpredictable lifestyles).

Conducting motivational interviewing with people with severe mental disorders also of course presents additional challenges, especially if it is conducted during an acute episode. Some of these were mentioned earlier in relation to assessment (e.g., suspicion, concerns over involuntary treatment, and high levels of thought disorder). We address these problems by using the initial part of the admission to develop rapport and conduct assessments, and waiting until the person can concentrate for at least 10 minutes before beginning motivation enhancement. Together with others in this field (Carey et al., 2001), we also tend to spread the motivational interviewing over several sessions, allowing rehearsal by the person of key aspects such as the motivational ‘balance sheet’ in relation to their drug use. Difficulties in holding several positive and negative aspects in mind simultaneously are addressed by the use of written summaries that provide immediate visual feedback (e.g., the length of the lists of good and ‘not-so-good’ features of substance use, or the circling of one key reason for change).

Another challenge for motivational interviewing in people with severe mental disorders is the loss of alternative goals and activities. Functional goals that the person had before the illness developed, may not have been replaced with ones that are now attainable. Any former friends who were not substance users tend to be progressively lost in more chronic forms of the disorder (Jackson & Edwards, 1992). The picture rapidly becomes very like the impoverished and substance-focused lifestyle seen in people with severe, non-comorbid substance use disorders. A significant part of the motivational interviewing process often becomes the elicitation of new goals and activities that might be substituted. However the degree of behavioural change and of potential losses to the person if they begin an attempt should not be underestimated. One possible strategy is to identify a specific goal that the client wants to achieve (preparation or action stage of change), and explore how substance use affects difficulty in achieving this goal (Smyth, 1996).

Lack of engagement is not only about competitive incentives. As Miller and Rollnick (1995) recognised, low self-efficacy about being able to control substance use is a further reason for people not beginning an attempt. Depression makes it difficult for people to start significant behaviour change, not only because it reduces the power of incentives, but it undermines self-efficacy (Kavanagh, 1992). Verbal persuasion is a relatively weak method of developing greater self-efficacy: a much more powerful strategy is to obtain feedback of successful performance (Bandura, 1986). How then
can we encourage people to begin an attempt? One strategy is to take a shaping approach to goal setting by encouraging the initial adoption of an intermediate goal that they have already reached at some time in the past (e.g., delayed use, or use only on particular days). This goal has a high probability of again being obtained, and the success will provide confidence in gradually adopting more ambitious goals. A second strategy is to acknowledge the person’s commitment to change, and discuss one new method or skill he or she might use in the following week to obtain a degree of control over their use on one or more days. Evidence of the success of this strategy is then used to encourage further goal setting.

Evidence on motivational interviewing to promote engagement in comorbid populations

The evidence is more substantial that an adaptation of motivational interviewing can enhance engagement of people with comorbidity into more substantial treatments. For example, motivational interviewing improves treatment adherence by patients with depression and cocaine dependence (Daley, Salloum, Zuckoff, Kirisci, & Thase, 1998). Positive results have also been shown in people with severe mental disorders (Swanson, Panto, & Cohen, 1999). Conversely, trials of psychological therapies for substance misuse in psychosis that have not employed these strategies, have not resulted in strong clinical outcomes (Hellerstein, Rosenthal, & Miner, 1995; Lehman, Myers, Thompson, & Corty, 1993). Several controlled trials have evaluated the effectiveness of motivational interviewing among people with severe mental illness and substance use disorders. Swanson and colleagues (1999) conducted a randomised controlled trial of a brief motivational intervention comprising a 15-minute feedback session on their readiness for change at the beginning of hospitalisation and a one hour motivational interview one or two days prior to discharge versus standard treatment among 121 psychiatric in-patients, the majority (77%) of whom were diagnosed with comorbid substance abuse or dependence disorders. The proportion of subjects who attended their first psychiatric outpatient clinic appointment was significantly higher in the motivational interviewing group.

Martino and colleagues (2000) conducted a pilot study in which 23 people with either mood or psychotic disorders and comorbid substance abuse/dependence were randomly assigned to either a motivational interview or standard interview prior to participation in a 12-week partial hospital program. Subjects who received a motivational interview attended the program for significantly more days compared to patients in an historical control group, with standard interview subjects’ attendance falling between the two groups. Subjects who had received motivational interviewing were also less tardy in their attendance and had fewer early departures.

Baker and colleagues (in press) randomly assigned 160 in-patients in a psychiatric hospital to either a motivational interview or brief advice, with the aim of increasing engagement in a specialist treatment service for people with comorbid problems and reducing alcohol and other drug use. The motivational interview was not associated with increased attendance at the specialist treatment service. However, there was a trend for subjects who received the motivational interview to report a clinically significant, short-term reduction in polydrug use compared to the control condition (Baker et al., in press (b)).

Thus, there is accumulating evidence that brief motivational interviewing is associated with at least modest behaviour change in the short term among people...
with severe mental disorders. Improved staff training with ongoing support for sustained changes in therapist behaviour, combined with longer motivational interventions, which are applied flexibly as clients move forwards and backwards through the stages of change, may lead to longer-term therapist and client change.

**Selection of a substance use goal**

Many comorbid people would like to keep using one or more substances such as alcohol, on occasion, even when a moderation target may not be seen by others as appropriate. There are in fact substantial reasons in many cases to recommend abstinence. For example, maintaining even a low alcohol intake in schizophrenia has been found in some studies to be problematic or unstable (Drake & Wallach, 1993), and as already mentioned above, even small amounts of substance use can produce problems for people with severe mental disorders. However, moderated substance use may remain an achievable and functional goal for some people with even severe types of mental disorders (Kavanagh et al., in submission). As in other populations, a trial of reduced intake often provides an effective initial strategy, especially where the person agrees to review their goal after a set period to see if it needs to change. Similarly, self-selection of the initially targeted substance allows the person to own the process. Thus, nicotine smoking is sometimes selected by people with multiple substance misuse as an initial target, because of the success of media coverage about the effects of smoking on health, even though smoking may not be the most pressing functional target and may not be the easiest to control.

**Additional psychological interventions**

Research on psychological strategies for substance abuse which might follow motivation enhancement is in its infancy. Twelve-step approaches, such as Alcoholics Anonymous (AA) are commonly used for comorbid groups, especially in North America (Kurtz et al., 1995). However they are unlikely to prove the most effective methods for many patients, because they do not typically involve an integrated approach to the disorders, and have an inflexible goal that many people do not at least initially identify with. Often these groups also require a level of social performance that exceeds the current capabilities (or anxiety tolerance) of many people with mental disorders (Noordsy, Schwab, Fox, & Drake, 1996). Some members of groups even oppose medication, which is an important component of successful management of severe mental disorders, although one survey indicated that the vast majority of contact persons for AA were not opposed to the use of psychotropic medications for persons with a mental disorder (Meissen, Powell, Wituk, Girrens, & Arteaga, 1999).

Currently researchers are focusing on a range of strategies including family intervention (Barrowcough et al., 2001; Kavanagh, White, Young, & Jenner, 2000; Mueser & Fox, 2002), problem solving, cognitive therapy (Graham et al., 1998), social skills training (Bellack & DiClemente, 1999), residential rehabilitation programs provided in integrated community settings (Brunette, Drake, Woods, & Hartnett, 2001), and variations on community reinforcement strategies (Hunt & Azrin, 1973) to assist in development of lifestyle changes. Controlled research on most of these interventions is currently underway. Given the complexity of co-occurring disorders, it is likely that combinations of strategies will offer synergistic effects, and that different combinations will prove useful with different patients.
Our current opinion — as yet awaiting substantial research support — is that psychological treatment should be titrated according to the patients' needs, so that at least some intervention can be widely available. At least three groups may be distinguished: those with mild substance-related problems who will achieve positive outcomes after a brief, motivational intervention, those who require more extensive skills training and social support for success, and others (often with severe cognitive deficits) who may require environmental structure (e.g., supported housing, financial guardianship and/or programmed activities) (Kavanagh et al., 1998).

**Multi-component studies on severe mental disorders**

Even when combinations of psychological strategies are applied within an integrated framework and a substantial treatment dose is provided, outcomes are often relatively modest. For example, a six-month treatment by Bellack and colleagues (Bellack & DiClemente, 1999) that includes social skills training (including drug refusal skills), problem solving, education, motivational interviewing and goal setting, and training in relapse prevention, was pilot tested in 42 people with schizophrenia and SUD. At the date of publication, 14 had dropped out and 14 had completed the program. Of these, only five (36%) had more than 67% of drug urines clean of drugs over a six-month period (Bennett, Bellack, & Gearon, 2001).

A large randomised controlled trial of assertive community treatment (ACT, n=105) versus routine case management (n=98) had similar results (Drake et al; 1998). Despite a high level of time investment, significantly different results were found on only some outcome variables. ACT was associated with a higher level of engagement in a substance control attempt and with less severe alcohol misuse, but not with differentially improved use of other drugs or days in the community. Greater reductions in days of alcohol use were seen in the ACT sub-sample who actually received the treatment. Across the full sample, remissions of the alcohol or drug use disorder did not differ between the treatment groups, although the remission rates were substantial (e.g., for ACT, 43% were remitted at three years following treatment initiation).

A recent study (Barrowclough et al., 2001) provides an example of a methodologically sound randomised controlled trial on the addition of an integrated treatment to routine care. Sixty-six adults with a non-affective psychosis and a substance use disorder who had at least 10 hours contact per week with a caregiver and who did not have either an organic brain disorder, a learning disability or a current medical illness were invited to participate in the study. Thirty-six patient/caregiver pairs (55%) consented and were randomly allocated to routine care or routine care plus integrated intervention. Routine care comprised case management, medication, monitoring and access to rehabilitation services. The additional intervention was substantial, totalling a median of 22 individual sessions and a median of 11 integrated family sessions over nine months, plus practical assistance and advice from a family support worker. Individual sessions comprised up to five weekly individual sessions to assess and enhance motivation for change, followed by individual cognitive-behaviour therapy for psychotic symptoms. The conjoint family sessions addressed shared goals and attempted to build a response that was consistent with motivational interviewing (Miller & Rollnick, 2002). Assessments were blind to condition. At 12 months, 33% of the integrated treatment group had relapsed, compared with 67% in routine care, but the integrated
treatment group did not have consistently better symptom scores at all time points. The integrated group had higher Global Assessment of Functioning scores at nine and 12 months, but did not have superior social functioning. The mean percentage of change in days abstinent from all substances over the three, six, nine and 12 month assessments was greater in integrated than the routine care group, although the effect on the most frequently used substance and the effects at each time point were not significantly different. Some further weakening of substance use effects occurred by the 18-month follow-up assessment (Haddock et al., 2002). This study illustrates the difficulty in obtaining strong effects on substance use even in the context of substantial interventions.

Inconsistent, weak or non-significant results litter the field. For example, in George et al. (2000), no significant difference in smoking outcomes was obtained in a sample of 45 people with schizophrenia or schizoaffective disorder who were randomised to nicotine patches and ten weekly one-hour group sessions of either a standard program for smoking cessation (American Lung Association) or to a specialised group program for people with schizophrenia. Both groups showed 35–36% abstinence rates. Those who received atypical antipsychotic medication (56%) were less likely to smoke than those who had conventional antipsychotics (22%), but this variable was not manipulated in the study.

As can be seen from the above review, it is too early to be prescriptive about the specific elements that should be included in a multi-component intervention, after the engagement of the person in a substance control attempt. Assertive follow-up probably is important for many people in this group (Drake et al., 1998), as is drug refusal training (Bellack & DiClemente, 1999). Psychological strategies to deal with symptoms without substance use may also be important (Barrowclough et al., 2001). Three other aspects are receiving increased attention. These are interventions for families, for social network enhancement, and for employment.

Several factors have converged to focus recent attention on family intervention for co-occurring disorders. First, the presence of a co-occurring disorder in the family can lead to high levels of stress and burden on relatives (Dixon, McNary, & Lehman, 1995; Salyers & Mueser, 2001), which can weaken family support leading to housing instability and homelessness (1995; Caton, Shrout, Eagle, Opler, & Felix, 1994). Second, high levels of stress in the family have been associated with a worse course of severe mental illness (Butzlaff & Hooley, 1998) and substance abuse (Fichter, Glynn, Weyerer, Liberman, & Frick, 1997). Third, extensive research documents that family intervention is effective for improving the outcomes of both severe mental illness (Dixon et al., 2001) and substance abuse (Stanton & Shadish, 1997), but no controlled trials of family intervention for co-occurring disorders have been reported.

To address this problem, two family intervention programs for co-occurring disorders have recently been developed (Barrowclough et al., 2001; Mueser & Fox, 2002). While the programs differ somewhat in structure and content, they share much in common. Both programs include psychoeducation about severe mental illness and substance abuse, strive to reduce tension in the family by promoting improved communication skills, and help families solve problems related to substance abuse by taking a motivational interviewing approach with the family. The Barrowclough family intervention was evaluated in a controlled trial that
included individual therapy sessions based on motivational interviewing and cognitive behaviour therapy, with positive results reported for substance abuse and psychiatric relapse outcomes reported (Barrowclough et al., 2001, described earlier in this section). The intervention developed by Mueser & Fox, (2002) was evaluated in a series of six cases, all of whom showed significant improvements in substance abuse outcomes. This intervention is currently being evaluated in a controlled trial.

**Psychological management of non-psychotic disorders with substance use disorders**

There are two controlled trials on the psychological management of co-existing depressive symptoms and alcohol misuse (Brown, Evans, Miller, Burgess, & Mueller, 1997; Turner & Wehl, 1984). Neither trial examined integrated treatment; instead, the addition of a parallel treatment to a standard treatment for alcohol misuse was evaluated. Both studies included people who may not have met criteria for major depressive disorder. Brown et al., (1997) compared the effects of an eight-session cognitive-behavioural therapy (CBT) for depression versus relaxation training. CBT for depression had a greater impact on depressive symptoms during treatment. The group receiving CBT for depression had a greater percentage of days abstinent at the three- and six-month follow-ups, and by six months it also had more abstinent participants and a lower daily alcohol intake. In Turner and Wehl (1984), an individual CBT plus alcohol treatment was reported as having a greater impact on alcohol use and depression than did alcohol treatment alone, but group-based CBT did not.

A study comparing relaxation training with anxiety management training for anxiety symptoms of people attending for alcohol treatment (Omrod & Budd, 1991) found that anxiety management was more effective than relaxation training at relieving anxiety symptoms, but that there were no differences in alcohol consumption. However the sample did not necessarily meet diagnostic criteria for an anxiety disorder, and the intervention was not a full integrated treatment for both disorders. The study by Randall et al., (2001), reviewed earlier under “Integration of treatment”, found no significant effects from adding a social phobia treatment to CBT for alcohol abuse, but that also represented a trial of parallel treatment, and the social phobia treatment as being a relatively weak version of the procedure.

Multiple case series on the integrated treatment of PTSD and substance abuse problems (Kuhne, Nohner, & Baraga, 1986; Najavits, Weiss, Shaw, & Muenz, 1998) suggest that a combined approach is most effective. For example, Back et al., (2001) described a treatment program for patients with PTSD and co-occurring cocaine dependence that included imaginal and in vivo exposure for PTSD and cognitive-behavioural treatment for cocaine dependence. A pilot study of 39 clients indicated excellent outcomes for both PTSD and cocaine dependence for clients who completed the program, but the dropout rate from the program was high (61.5%) (Brady, Dansky, Back, Foa, & Carroll, 2001). A similar program has been described by Triffleman, Carroll, and Kellogg (1999). Similarly, a series of three case studies by Lehman, Brown, and Barlow (1998) suggest that standard cognitive-behavioural treatment of panic disorder may sometimes result in improvements of not only the panic symptoms, but of secondary alcohol misuse as well.
The psychological treatment of comorbid anxiety and depression can be guided by the evidence base on treatment of these disorders in the absence of substance use disorders. Treatment of anxiety disorders is likely to emphasise cognitive-behavioural procedures such as exposure plus relevant cognitive therapy (Brown & Barlow, 1992). Treatment of depression is likely to include cognitive therapy (Beck, Rush, Shaw, & Emery, 1979) or interpersonal therapy (Klerman, Weissman, Rounsaville, & Chevron, 1984), with modifications in content and style to deal with the comorbid substance use disorder (e.g., Beck, Wright, Newman, & Liese, 1993; Scott et al., 1998).

**Pharmacological management for the mental disorder**

**Antipsychotic medication**

There are few controlled trials on the use of specific antipsychotics on people with psychoses and SUD, although it appears that clozapine (Buckley, Thompson, Way, & Meltzer, 1994) and olanzapine (Conley, Kelly, & Gale, 1998) have approximately equal effectiveness in treatment-resistant patients with and without substance abuse. While not directly relevant to comorbidity, it is interesting to note that a recent Cochrane review on the management of amphetamine psychosis found that there were no studies meeting criteria for consideration (Srisurapanont, Jarusuraisin, & Kittirattanapaisan, 2001). A randomised trial on cannabis-induced psychosis found equivalent antipsychotic effects from olanzapine as for haloperidol, but with lower side-effects for the former.

There is now considerable evidence from treatment trials in psychosis that the more recently released “atypical” antipsychotics have fewer extrapyramidal side-effects (e.g., parkinsonism, akathesia and acute dystonia) and a lower risk of tardive dyskinesia than traditional antipsychotics (Casey, 1999). Since people taking standard antipsychotic medication have an increased risk of tardive dyskinesia if they misuse alcohol, cannabis (Olivera, Kiefer, & Manley, 1990; Salyers & Mueser, 2001; Zaretsky et al., 1993) and perhaps nicotine (Yassa, Lal, Korpassy, & Ally, 1987), it may be especially important for these patients to be given medications with a lower risk of this side-effect. It is plausible that a reduction in medication side-effects including medication-induced dysphoria may also increase adherence in people with comorbid SUD (Voruganti, Heslegrave, & Awad, 1997), but it is not yet established that this does in fact occur.

There is growing evidence that changing to an atypical medication may reduce smoking (George & Krystal, 2000; George, Sernyak, Ziedonis, & Woods, 1995; McEvoy & Brown, 1999), alcohol, marijuana and cocaine use (Drake, Xie, McHugo, & Green, 2000; Zimmet, Strous, Burgess, Kohnstamm, & Green, 2000) in people with schizophrenia. Most of the studies have used clozapine (Drake et al., 2000; George et al., 1995; McEvoy & Brown, 1999), although open trial studies also support some other drugs such as olanzapine (Littrell, Petty, Hilligoss, Peabody, & Johnson, 2001). While appropriately sized randomised controlled trials are needed, the current data suggests that management of schizophrenia comorbid with substance misuse should include atypical medication such as clozapine as one of its components.

Atypical antipsychotic medications also provide a small average improvement on neurocognitive functioning in comparison to the standard neuroleptics (Green et al., 1997; Hagger et al., 1993). In principle, people with increased cognitive functioning may be more able to plan effective strategies to prevent substance misuse (Marcus &
Snyder, 1995) and benefit more from psychological interventions (George et al., 2000; Rosenheck et al., 1998), although it is not clear that the cognitive effects of atypical medications are of sufficient size to allow these benefits.

The disorganised lives of many people with psychosis and substance use disorders has in the past led to concerns over adherence to oral medications. Hopefully the advent of depot forms of these medications will address this problem. In the case of clozapine, the need for regular blood monitoring to address the risk of agranulocytosis (McGrath & Emmerson, 1999) increases the importance of assertive contact strategies and multiple tracing methods for comorbid patients being treated with that medication.

There may be one exception to the preferred management of comorbid groups by atypical medication. There has been speculation that flupenthixol may be an effective treatment of both schizophrenia and cocaine abuse in people with these comorbid disorders (Levin et al., 1998). However there is no published controlled trial on this as yet, and the proposal needs to be assessed in the light of uncontrolled data that switching to atypical medications may assist cocaine abusers as well as other substance users (Drake et al., 2000; Zimmet et al., 2000).

**Pharmacotherapy for depression**

While antidepressants may not be as effective in people with comorbid alcohol use as in populations without comorbidity (Worthington et al., 1996), there is evidence that both tricyclic antidepressants (Mason et al., 1996; McGrath et al., 1996) and SSRIs (Cornelius et al., 1997; Kranzler et al., 1995; Roy, 1998; Schmitz et al., 2001) are more effective than placebo at addressing depression in comorbid populations. Their impact on the concurrent substance misuse is less clear. Most of the research has been undertaken with alcohol disorders. In a double-blind placebo controlled trial by Roy-Byrne et al., (2000), nefazadone plus weekly group treatment for alcoholism did not differentially impact on alcohol outcomes compared with placebo plus group treatment. Both groups showed significant reductions in alcohol use. Similarly, McGrath et al., (1996) found that imipramine plus weekly sessions on relapse prevention did not have a greater effect than placebo plus weekly therapy on the alcohol outcomes of people being treated for major depression. On the other hand, a study of patients with alcohol dependence by Mason et al., (1996) found that desipramine did reduce alcohol relapse more than placebo. The effect appeared predominantly due to the depressed participants.

A double-blind, placebo-controlled trial of fluoxetine plus supportive psychotherapy and encouragement of AA attendance illustrates the complexity of the issues (Cornelius et al., 1997). Participants were 51 in-patients admitted with major depressive disorder and concurrent alcohol dependence. Fluoxetine (average 45 mg daily) resulted in a significantly greater improvement in both disorders, although the drop in depression was modest, and did not reach statistical significance on the Beck Depression Inventory (Beck, Ward, & Mendelson, 1961). In the placebo group, falls in depression were strongly associated with reductions in alcohol intake. However this was not the case in the fluoxetine group, suggesting that the differential effect on alcohol measures probably did not occur via the differential change in depression. Nor does a direct impact of fluoxetine on alcohol outcomes appear to occur in an unselected sample of people with alcohol dependence (Kranzler et al., 1995).
although it is possible that different processes may underlie the alcohol misuse in comorbid populations. Fluoxetine did not add to the effectiveness of an integrated cognitive-behavioural treatment of cocaine use and depression in Schmitz et al. (2001). Early reductions in cocaine positive urines were actually found in the placebo group. In addition, sertraline did not improve the outcomes achieved by CBT in a study of depressed adolescents with alcohol misuse (Deas, Randall, Roberts, & Anton, 2000), nor did fluoxetine improve heroin outcomes compared to placebo in a sample of methadone-maintained patients with depression (Petrakis et al., 1998). As in some other studies (e.g., McGrath et al., 1996; Roy-Byrne et al., 2000), the results of both these trials are consistent with a floor effect produced by an effective and relevant intervention in the control condition.

Mood stabilisers may not be indicated for comorbid alcohol use and unipolar depression. The current evidence on lithium for depression in alcohol dependence suggests that it is not significantly better than placebo in terms of either alcohol or depression outcomes (Dorus et al., 1989).

**Pharmacotherapy for anxiety**

In people with both anxiety and alcohol disorders, buspirone has shown better outcomes on both disorders in three out of four controlled trials that have been published to date (Kranzler et al., 1994; Malcolm, Anton, Randall, & Johnston, 1992; Tollefson, Lancaster, & Montague-Clouse, 1991; Tollefson, Montague-Clouse, & Tollefson, 1992). A case series found that sertraline produced effects on both alcohol use and symptoms of post-traumatic stress disorder (Brady, Sonne, & Roberts, 1995). A single case has been reported where further relief from anxiety symptoms was obtained by adding buspirone to sertraline in people with alcohol dependence and anxiety (Sprenger, 1997).

**Adjunctive medication for substance misuse**

**Nicotine replacement**

Nicotine replacement may be of particular importance in those with mental disorders, because of the higher severity of subjective withdrawal symptoms that is reported by people with anxiety or depression (Breslau, Kilbey, & Andreski, 1992). Our search of the literature did not locate any randomised controlled trials of nicotine replacement therapy in comorbid individuals. However there is some evidence from case series and multi-component trials that it may be of benefit, even in schizophrenia (Addington, 1998; George et al., 2000; Ziedonis & George, 1997). While there have been reports of some cases where psychosis developed during a quit attempt when patients were on nicotine patches (Scurlock & Lucas, 1996), studies have not reported increased positive symptoms (Addington, 1998; Dalack, Becks, Hill, Pomerleau, & Meador-Woodruff, 1999; George et al., 2000).

**Bupropion**

The very high rates of smoking in psychosis (Kavanagh et al., 2002, in submission) have triggered interest in bupropion as a treatment. There are no reported randomised controlled trials in schizophrenia as yet, but there are case studies and open-label trials that suggest it may be of benefit (Evins & Tisdale, 1999; Weiner, Ball, Summerfelt, Gold, & Buchanan, 2001). However bupropion can trigger an exacerbation of positive symptoms or mania (Howard & Warnock, 1999). It can also
cause seizures, especially in people who are also taking antipsychotic medications, misuse alcohol or have other predisposing factors such as unstable diabetes, head trauma or CNS tumour, eating disorders, or a history of previous seizures (Steele, 2000).

**Disulfiram**
There is case study evidence that disulfiram may assist with alcohol dependence in schizophrenia (Brenner, Karper, & Krystal, 1994; Mueser, Noordsy, Fox, & Wolfe, in press) and many people may take it without an increase in positive symptoms (Mueser et al., in press). The parameters for its use are similar to those for alcohol dependence alone (Wetzler & Sanderson, 1997). There are reports that disulfiram may sometimes exacerbate or trigger psychotic symptoms at high doses (Poulsen, Loft, Andersen, & Andersen, 1992). However 250 mg daily does not appear to induce psychosis in people with alcohol dependence and psychiatric disorders (Larson, Olincy, Rummans, & Morse, 1992).

**Naltrexone and acamprosate for alcohol misuse**
There are no published studies reporting randomised controlled trials on the use of naltrexone and acamprosate for comorbid alcohol disorders and mental disorders. However the high rates of depressive symptoms in alcohol disorders would suggest that existing data on their use in people with alcohol abuse or dependence would also support their use in comorbid depression and anxiety (Kranzler & Van Kirk, 2001). Open label data on naltrexone also supports its use in comorbid depression (Salloum et al., 1998). A case series by Maxwell and Shinderman (2000) of people with comorbid alcohol use disorders and serious mental disorders (primarily major depression or schizophrenia spectrum) showed high retention in naltrexone treatment over eight weeks and 82% reduced their consumption by at least three-quarters. Contrary to early concerns (Malcolm, O’Neil, Von, & Dickerson, 1987), current evidence does not suggest that naltrexone produces significant dysphoria either in the general population (Miotto, McCann, Basch, Rawson, & Ling, 2002) or in comorbid sub-populations (Salloum et al., 1998), although further evidence is needed on the latter.

**Medications for opiate dependence**
Depressive and anxiety disorders are common in people with narcotic dependence who are treated with methadone maintenance (Mason et al., 1998). Woody and colleagues (1987; 1984) randomly assigned 110 male war veterans enrolled in a low dose methadone maintenance program to one of three conditions: supportive-expressive psychotherapy (SE) plus drug counselling (DC); CBT plus DC; and DC alone. Therapy sessions were scheduled weekly for six months. Significant improvements were found at seven months for low psychiatric severity (as measured by the ASI) patients in all three groups and the addition of SE or CBT offered no advantage. However, in the patients with medium and high psychiatric severity, there were clear benefits of psychotherapy on numerous measures. Woody and colleagues recommended that psychotherapy can be beneficial to patients enrolled in methadone maintenance programs with severe psychiatric symptoms. Some cases of psychotic episodes during methadone tapering have been reported (Levinson, Galynker, & Rosenthal, 1995), suggesting increased monitoring for exacerbations may be required in comorbid schizophrenia or other psychoses during withdrawal.
Methadone may also alter neuroleptic requirements in schizophrenia (McKenna, 1982; Verebey, Volavka, & Clouet, 1978).

Conclusions

We can expect no single assessment or treatment process will be effective for all types of comorbidity, because of the substantial degree of heterogeneity in those disorders. For the large numbers of people with anxiety or depression and alcohol misuse, brief interventions may prove to be both effective and practicable, especially if they can be delivered within a primary care setting. Brief interventions may even prove effective in people with psychosis who have low levels of cognitive deficit and low dependence, but further data needs to be obtained before we can be confident of this conclusion. For people with high levels of substance dependence or deficits in critical skills, more intensive interventions may be required, and in the case of people with chronic cognitive deficits, these may need to take the form of harm reduction interventions within the context of long-term supportive care. Some of the key current areas of knowledge may be summarised as follows:

- Screening measures for SUD need to be able to detect problems that may emerge in MD at low levels of substance intake and dependence. Some measures that are used in the general population such as the AUDIT or SDS can be confidently applied, and some measures such as the DALI and DrugCheck that are designed specifically for comorbid populations show promise. Self-reports of substance intake can be reliable and valid, even in people with psychoses, as long as rapport has been developed and incentives for accuracy are present. Biochemical assays and collateral data do not substantially add to accuracy, but data in the general population suggests that awareness that such measures are being collected may add to accuracy of self-report. Measures of readiness to change substance use, readiness for treatment and insight into mental disorders are also available.

- Screening measures for mental disorders appear to be applicable to those presenting with substance use disorders, although there are few specific data on the issue.

- Engagement and motivational enhancement appear to be effective in comorbid substance use and mental disorders in increasing rates of engagement in treatment and substance control attempts; although multiple engagement attempts may be required for many people, and a substantial proportion may remain unmotivated to change. While an abstinence goal may often be the option most likely to result in a positive outcome, intermediate goals will initially be selected by many consumers.

- An intervention that integrates management of the substance use and mental disorders is indicated in severe mental illness, and is also likely to be most effective in other contexts where there are strong mutual influences between the disorders.

- Standard pharmacotherapy for depression is effective in people with comorbid depression and alcohol misuse. Atypical antipsychotics are preferred to typical drugs in people with psychosis and substance use disorders, and clozapine in particular has shown beneficial effects on the substance misuse as well as the psychotic symptoms. Nicotine replacement appears safe in those with comorbid mental disorders including psychosis.
However, the literature on assessment and management of comorbid substance use and mental disorders is sparse, and many questions remain unanswered. Some examples are:

- Is integrated treatment superior to parallel or sequential management in anxiety and depression?
- What are the critical effective elements of interventions for comorbidity?
- Are acamprosate and naltrexone effective treatments for alcohol dependence in psychosis?
- What are the effective treatments for opiate dependence in mental disorders?
- Can effective management of substance use and mental disorders in primary care be demonstrated, and what will that comprise of?
- How can treatments for such comorbidity be successfully disseminated in existing services, and across rural and remote areas?

Answering these questions will be critical to the outcomes of people with comorbidity of substance misuse and mental disorders.

References


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**Chapter 5: Management of comorbidity**


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