NHS National Programme on Forensic Mental Health Research and Development

Expert Paper:
**Dual Diagnosis of Mental Disorder and Substance Misuse**

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The National Programme on Forensic Mental Health R&D was established in April 1999. It has built on the work of the R&D Programme set up as part of the High Security Psychiatric Services Commissioning Board, which was first established in September 1996. The Programme’s remit is to develop the evidence base of mental health services for mentally disordered offenders in a range of NHS settings.

An Advisory Group informs the Programme on the commissioning, dissemination and implementation of R&D in this area. In April 2000 and early 2002 this group commissioned expert papers to be written covering the categories identified from an earlier priority question setting exercise undertaken by representatives of key stakeholder groups.

This report is one of a series covering:

- Antisocial Personality Disorder: Children and Adolescents
- Dual Diagnosis of Mental Disorder and Substance Misuse
- Prison Healthcare
- Social Division and Difference: Black and Ethnic Minorities
- Sex Offender Research
- Social Division and Difference: Women
- Mental Illness and Serious Harm to Others
- Personality Disorder (commissioned 2002)
- Neurobiological approaches to Disorders of Personality (commissioned 2002)
- User involvement in Forensic Mental Health R&D (commissioned 2002)

These papers were written to provide an overview of ongoing and completed research in addition to proposing a future programme of research. They include the following:

- An overview of ongoing and completed research
- Identification of the gaps in knowledge which should include consideration of the research questions proposed by stakeholders in the priority question setting exercise;
- Formulation and prioritisation of three research questions;
- Any recommendations for achieving more effective commissioning of research (e.g., Identification of appropriate publications relevant to the topic area for advertising funding opportunities).

The views expressed in this publication are those of the authors and not necessarily those of the National R&D Programme Forensic Mental Health, the Advisory Group, or the Department of Health.

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Substance misuse that is comorbid with mental disorder may increase the risk of crime, and militate against effective treatment. It is therefore important that forensic mental health professionals understand the assessment and treatment of both substance misuse and mental disorder.

Since mentally disordered offenders may be detained under classifications of personality (psychopathic) disorder, mental illness, and learning disability (mental impairment / severe mental impairment), all three disorders are addressed, and this paper is structured accordingly.

Substance misuse includes intoxication, problematic use, and dependence, all of which are relevant to criminal behaviour, and the focus is on crimes related to the ingestion of substances.

**Central research issues**

**Substance misuse, personality disorder and crime**

Substance misuse and personality disorder commonly co-occur, with a particularly strong relationship with antisocial and borderline personality disorders. Substance misuse and personality disorder are also strongly associated with mood disorders, which may exacerbate the severity of substance misuse.

Although substance misuse is a criterion for diagnosing many personality disorders, personality disorders are evident even when substance-related symptomatology is excluded. Substance misuse and personality disorders appear to be rooted in the same inherent personality traits, particularly impulsiveness and aggressiveness. These traits may present an early risk factor for both substance misuse and personality disorder. Nevertheless, deviant behaviours are learned over time by the interaction between individuals and their social environment.

Substance-related violence appears to be related more to antisocial lifestyle than to psychopathy traits. Once substance use begins, this can be a direct cause of criminal behaviour, either through its psychopharmacological effects, or by creating the economic necessity to commit crime.

Personality disorders and substance misuse are highly prevalent in prison populations. Prevalences in hospitalised personality-disordered offenders are lower, although there is reason to suspect under-recording. Personality-disordered offenders present a high risk of recidivism, and, given the role of substance misuse in crime, it is important to treat substance misuse in this group. Treatments for substance misuse are well developed, and although personality-disordered substance misusers do less well in treatment than those...
with no personality disorder, they do improve. Developing treatment programmes for personality-disordered offenders is, therefore, a worthwhile endeavour.

**Substance misuse, mental illness, and crime**

In explaining the comorbidity of mental illness and substance use, two models have substantial evidence to support them:

- that comorbid mental illness and substance use are linked through antisocial personality disorder as the common factor
- that those who are psychobiologically vulnerable to psychiatric disorders are sensitive to a number of risks that may trigger the onset of mental illness, substance use being one such trigger.

These two types have been called 'early-starters' and 'late-starters', respectively, with early-starters having a criminal history that antedates the onset of mental illness, and late-starters beginning to offend as symptoms emerge. It is imperative, when dealing with people who may be legally detained on the grounds of suffering from a mental illness, to assess for transient substance-induced psychoses, so that symptoms of mental illness that are secondary to substance misuse are identified before decisions are made about medico-legal detention.

Substance misuse by people with a mental illness increases the likelihood of crime, particularly violent crime, although mentally ill substance misusers are not much more violent than substance misusers without a mental illness. The risk of violence in mentally ill substance misusers is increased with medication non-compliance. Integrated treatments for both mental illness and substance misuse are most effective, yet often these problems are treated by separate parts of mental health services. Furthermore, assertive outreach, intensive supervision, and community connections are all important as part of the treatment programme.

**Substance misuse, learning disability, and crime**

People with learning disabilities are less likely to abuse substances, but those who do experience the same problems as others. Programmes need to be adapted to suit the needs of those with learning disabilities, typically by being simpler, more behavioural, more interactive, of longer duration, and involving the client's family. Substance misuse treatment is not commonly available to people with learning disabilities, perhaps because of the efforts involved in adapting programmes to suit, and again because of the separateness of learning disability and substance misuse services.

**Three high-priority research questions**

1. **Assessment**

Forensic mental health professionals need to know how to assess comorbid mental disorder and substance use, both to avoid misdiagnosis and to get a comprehensive
clinical picture. What we know as ‘dual diagnosis’ should be deconstructed to guide the professional to examine all of the following areas together:

- mental illness
- personality disorder
- learning disability
- mood disorders
- the misuse of alcohol
- the misuse of various illicit drugs
- the inter-relationships among these.

Furthermore, neuropsychological status should be assessed, since the prevalence of impairment in mentally disordered offenders is high. Impairment may increase vulnerability to mental disorder, substance use and violence, and thereafter substance use and violence may cause impairment that exacerbates mental disorder and violence. A comprehensive needs assessment schedule could be developed and examined in practice, with separate versions for those in secure settings who may not have had access to substances for many years, and those in the community who are currently able to access substances. A comprehensive assessment would help integrate the treatment of substance misuse with the treatment of mental disorder.

2. Treatment

Integrated treatments for comorbid mental disorder and substance abuse have generally been rather slow to develop. The development of effective treatments, tested using appropriate research methodologies, and collecting long-term outcome data, is crucial for dually diagnosed mentally disordered offenders. Much work is need on addressing the complex question: what works best with whom under what conditions? This can be broken down into the following areas:

- What works best? i.e. treatment type, intensity, and duration
- With whom? i.e. which diagnostic groups (Axes I and II), what types of substance, what client characteristics (e.g. age, sex, ethnicity, neuropsychological status, cognitive capacities, and personality traits, such as impulsivity and aggressiveness)
- Under what conditions? i.e. venue (prisons, hospitals, and the community), therapist qualities, and whether treatment is voluntary or mandatory.

3. Longitudinal studies

Researchers agree that prospective longitudinal studies are important to the understanding of mental disorder, substance use, and crime. Longitudinal studies could measure, among other things:

- mental disorder, including a wider range of mental illness diagnoses than most of the research currently addresses
- psychological factors, including neuropsychological functioning and executive cognitive functioning
- mood states
- types and quantities of substances used
- details of incidents of violent or other crimes
- links between crime and various symptom patterns, e.g. paranoia and antisocial beliefs
- the person’s interpretations of the relationships between mental disorder, substance use and crime.

Such research should be theory-driven, examining hypotheses about the development, inter-relationships, maintenance, and cessation of mental disorder, substance use, and crime. This information would inform prevention and treatment endeavours.

Effective commissioning of research

In order to commission research effectively, research funding opportunities could be advertised in two major areas:

- the addictions field - an advertisement could be placed in *Addiction*, the journal of the Society for the Study of Addiction, based in the United Kingdom (UK). In addition, leaders of key addiction research groups could be approached, and some names are suggested
- the forensic mental health field - advertisements could be placed in leading UK journals, such as *Legal and Criminological Psychology, Criminal Behaviour and Mental Health, and the Journal of Forensic Psychology*. Forensic mental health professionals working with substance-misusing offenders could be approached, and, again, some names are suggested.
1. Introduction

1.1 Comorbid mental disorder and substance misuse may increase the risk of crime and militate against effective treatment.

The comorbidity of mental disorder and substance misuse is of interest to forensic mental health professionals in that these categories of problem, combined in an individual, may increase the risk of crime, particularly serious crime, and may militate against effective treatment to reduce the likelihood of crime. These concerns require that professionals understand the epidemiology, aetiology, risk, and treatability of comorbid mental disorder and substance misuse, so that services may be fashioned to meet the clinical needs of this population. The current key issues surrounding dual diagnosis in forensic mental health patients will be covered in this paper, culminating in a proposed research agenda aimed at advancing knowledge and practice.

1.2 Personality disorder, mental illness, and learning disability are all important in relation to substance misuse.

Regarding mental disorder, the scope of this paper is as follows. First, although the term ‘dual diagnosis’ is frequently used to refer to comorbid mental illness and substance use, a broader perspective will be taken here to include all three mental disorder categories represented in the mental health legislation of England and Wales, namely personality (psychopathic) disorder, mental illness, and learning disability (mental impairment / severe mental impairment). These disorders are the grounds for detention and treatment of offenders in health services, although where personality disorder and mental impairment are concerned, there must also be an association between the disorder and aggressive or irresponsible behaviour, and the disorder must be considered treatable.

Each of the three broad categories of mental disorder is relevant to the work of forensic mental health professionals, and, furthermore, these mental disorders are not mutually exclusive, in that a person may suffer from two or even all three together, meaning that professionals require knowledge of all three conditions.

1.3 Substance misuse includes intoxication, problematic use, and dependence.

Although substance use disorders exist within diagnostic systems, namely the International Classification of Diseases (ICD-10; World Health Organisation, 1992), and the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994), people whose problems stem exclusively from alcohol or drug consumption are explicitly excluded from the detainable categories of mental disorder in the Mental Health Act (1983). Here, issues relating to substance misuse in the
broadest sense will be examined. This includes acute intoxication, problematic use, and
dependence, thus permitting the review of a body of research that uses a wide variety of
definitions and measures of substance misuse. Indeed, in relation to crime, the study of
acute intoxication, withdrawal symptoms, problematic use, and dependence are all
important in different ways, and it is important to look at all aspects of substance use
and misuse. Included within the category of substance misuse are the misuse of alcohol,
prescribed drugs, and illicit drugs.

1.4 The focus is on crimes related to the ingestion of substances.

In examining substance-related crime, the focus will be on those crimes that are
associated with an individual’s intake of alcohol or drugs, excluding consideration of
crimes relating to possession, dealing, and trafficking.
2. Substance Misuse, Personality Disorder and Crime

2.1 Substance misuse and personality disorder commonly co-occur.

High levels of comorbidity of substance misuse and personality disorders are evident, with a median comorbidity prevalence of 61 per cent identified in one review of 50 studies (Verheul, Van den Brink and Hartgers, 1995). Although all personality disorders co-occur, the association is particularly strong between substance misuse and antisocial and borderline personality disorders, and illicit drug users show higher personality disorder prevalence rates than problem drinkers (Verheul, Van den Brink and Hartgers, 1995). Among substance misusers, the co-occurrence of antisocial personality disorder is twice as likely for men than women, and most likely in users of multiple substances, i.e. alcohol plus illicit drugs (Flynn et al, 1996). In substance misusers, there is a high degree of co-occurrence of antisocial with other personality disorders, particularly borderline, with multiple personality pathology associated with severity of substance misuse (Cecero et al, 1999). Furthermore, comorbid mood disorder is about three times higher in substance misusers with a personality disorder diagnosis (Kokkevi et al, 1998). Antisocial personality disorder with lifetime depression is associated with severity of dependence (Cecero et al, 1999), and there is evidence that alcohol misuse, either alone or with illicit drugs, is associated with disorders of anxiety and depression (Flynn et al, 1996).

2.2 Personality disorders are independent of substance misuse.

High levels of comorbidity of substance misuse and personality disorders have led to a concern that comorbidity could be a tautology (Rounsaville et al, 1998). Substance misuse is a defining criterion of some personality disorders, and some personality disorder features can be directly or indirectly related to substance misuse, for example irritability, irresponsibility, and affective instability. When substance-related symptomatology is excluded from personality disorder diagnoses, percentages drop but the incidence of comorbidity remains high (Rounsaville et al, 1998; Verheul, Van den Brink and Hartgers, 1995). This suggests that personality disorder diagnoses are not simply another way of measuring substance-related behaviours, although substance misuse may make underlying personality traits more evident.

2.3 Personality disorder, substance misuse, and violent crime appear strongly to be rooted in the same inherent personality traits.

Substance misuse and crime, particularly violent crime, share highly similar risk factors across the lifespan (Hawkins, Catalano and Miller, 1992), starting with early childhood signs of difficult temperament, aggression, and hyperactivity (Klinteberg et al, 1993; Loeber, 1988; Maughan, 1993; Wilens and Biederman, 1993). Most youngsters will experiment with drink, drugs, and delinquency as a normal part of their development, but those who show early temperament and behaviour problems, and who progress through
conduct disorders in childhood, are those most likely to persist with antisocial
behaviours, including aggression and violence, into adulthood, and are most likely to be
labelled personality disordered (Loeber, 1988). There is growing consensus that traits of
impulsivity and aggressiveness, which are evident very early on in life, underpin
antisocial and borderline personality disorders (Brennan and Raine, 1997; Links,
Heslegrave and Van Reekum, 1999), as well as serious substance misuse (O’Boyle and
Barrett, 1993), and that these traits have a biological basis. Substance misuse can
exacerbate underlying personality traits, and this is clearly a cause for concern when
these underlying traits are impulsivity and aggressiveness.

2.4 Personality traits may be risk factors, yet deviant behaviours are learned
in life by interactions between the individual and the social environment.

The interaction between the difficult child and an ill-equipped social environment across
the developmental span can elicit conditions that exacerbate the risk of both substance
misuse and crime (see reviews by McMurran, 1996, 1999; White et al, 1999). The difficult
child may experience harsh and erratic disciplinary methods, which fail to encourage
prosocial behaviour and begin the development of hostile beliefs about the world. The ill-
behaved and hostile child does not fare well at school, leading to unpopularity and poor
school performance. This increases the likelihood of truancy, and consequent association
with delinquent peers. Substance use and delinquency co-occur in such youth, giving rise
to the expectation that substance use will lead to crime, particularly violent crime, which
then becomes a self-fulfilling prophecy. Poor social problem-solving develops and persists
in these adverse social learning conditions. Continuation with and escalation of substance
use, crime, and violence leads eventually to social exclusion and reduced opportunities for
involvement in conventional society. The person is trapped in a lifestyle of substance use
and crime (Walters, 1994).

2.5 Substance-related violence is most typically associated with antisocial
lifestyle, rather than psychopathic personality traits.

With regard to psychopathy, as measured by Hare’s Psychopathy Checklist - Revised
(PCL-R) (Hare, 1991), one study of people in treatment for alcohol problems indicated
that:

- those scoring high on the PCL-R and those diagnosed as suffering from antisocial
  personality disorder formed two largely distinct groups
- the antisocial personality disorder sub-group had greater alcohol problems, drug
  problems, and criminal activity (Windle, 1999).

This corroborates the findings of an earlier study of prisoners in minimum security by
Smith and Newman (1990), in which substance misuse was shown to be related to PCL-R
antisocial lifestyle scores (Factor 2), not deviant personality traits (Factor 1). The
populations under study by Windle (1999), and Smith and Newman (1990), were not
serious offenders. By comparison, a sample of offenders from maximum security
institutions (both psychiatric hospital and prisons) was followed up at an average of eight years after discharge. This showed that:

- while alcohol abuse was associated with violent recidivism in the total sample, high PCL-R scorers were most likely to be violent recidivists
- in their case, alcohol abuse did not add to the accuracy of prediction of violence (Rice and Harris, 1995).

This indicates that treatment of alcohol misuse in violent psychopaths is unlikely to reduce violence, since this group is violent with or without the aid of alcohol, although if other effective treatments for violence are designed, it may be important to ensure that those treated can also control their substance use so that it does not interfere with treatment gains.

### 2.6 Substance use can be a direct cause of crime.

Whilst substance misuse and crime may have roots in a common cause, substance use can also be a direct cause of crime in two principal ways.

A **psycho-pharmacological model** proposes that the intoxicating effects of substances adversely affect a person's behaviour. Laboratory research indicates that alcohol consumption (laboratory research using illicit drugs with humans is rare, for obvious reasons) adversely affects attention, information processing, reasoning, problem-solving, and impulse control, so that the likelihood of crime is increased (see reviews by Chermack and Giancola, 1997; Graham et al, 1998). Indeed, of all the substances that may be abused, it is alcohol that is most strongly associated with violence, with evidence accruing for a relationship between crack cocaine and violence (Parker and Auerhahn, 1998). Among personality-disordered special hospital patients, those with a history of any type of substance misuse were substantially more likely to have taken alcohol at the time of a violent index offence (Corbett, Duggan and Larkin, 1998). Substance-related aggression and violence are most likely in those who are dispositionally aggressive (Chermack and Giancola, 1997).

An **economic necessity model** suggests that substance users need to acquire the wherewithal to support their substance use. Bennett (1998) found in his sample that those who said their drug use and crime were related had illegal incomes of around £12,000 per annum, two to three times higher (depending on geographical region) than those whose drug use and crime were not related. Turnbull et al (1999), in a study of offenders on Drug Treatment and Testing Orders, estimated the annual expenditure on drugs at £21,000 per person, this amount being acquired mainly through shoplifting, burglary, and selling drugs. Acquisitive crime is most closely associated with the use of heroin and crack cocaine (Bennett, 1998; Stewart et al, 2000).

### 2.7 Prevalences of both personality disorder and substance misuse among UK prisoners are high.

UK prisons contain high proportions of personality-disordered offenders. A comprehensive survey of the psychiatric morbidity of prisoners in England and Wales revealed that
antisocial personality disorder was present in 63 per cent of men on remand, 49 per cent of sentenced men, and 31 per cent of all women (Singleton et al., 1998). Other studies have indicated even higher rates of antisocial personality disorder in prisoners, but also high rates of almost all personality disorders (Coid, 1992; Dolan and Mitchell, 1994). Recent data from UK prisons support findings of continued high prevalence of substance misuse, with around 60 per cent of male prisoners and almost 40 per cent of female prisoners being alcohol abusers, and 80 per cent of men and 60 per cent of women having used drugs (Singleton et al., 1998). In one remand sample, 52 per cent were deemed to have a need for substance abuse treatment (Hardie et al., 1998), whereas measuring dependence in remand prisoners gives much lower prevalence rates: 12 per cent of men and 6.5 per cent of women were alcohol-dependent, and 19 per cent of men and 29 per cent of women drug-dependent (Brooke et al., 1998).

### 2.8 Prevalences of personality disorder and substance misuse among hospitalised mentally disordered offenders are lower than those for prisoners, but these may be underestimated.

With regard to hospitalised offenders, in a recent study of about 3,000 patients admitted to secure settings between 1988 and 1994, Coid and colleagues (1999) identified 16 per cent of patients classified as suffering from personality disorder, with the percentage being higher in special hospitals (28 per cent) than in medium secure units (14 per cent).

Again, studies have shown the whole range of personality disorders to be represented in secure hospital patients (Coid, 1992; Dolan and Mitchell, 1994; Reiss, Grubin and Meux, 1996). In studies of the UK special hospital population, the incidence of comorbid substance misuse in those diagnosed as personality disordered is identified as 14 per cent in one study (Taylor et al., 1998), and 18 per cent in another, with 4.5 per cent of these latter substance misusers being drug-dependent and 6.4 per cent being alcohol-dependent (Corbett, Duggan and Larkin, 1998). The authors of these studies suggest that the figures on comorbidity are likely to be an underestimate, due either to failure to enquire about or document substance misuse, or to under-reporting by patients.

The supposition that we underestimate the extent of comorbidity is borne out by data from Coid et al’s (1999) study of patients in secure settings, where substance misuse was determined from the patients’ histories rather than whether a diagnosis was recorded. By this method, 53 per cent of personality-disordered patients were judged as having a lifetime alcohol misuse diagnosis, and 47 per cent were considered to have a lifetime drug misuse diagnosis. Also, Quayle et al (1998) found that 42 per cent of secure hospital patients claim to have been drinking at the time of their index offence.

### 2.9 Personality-disordered offenders present a high risk of recidivism.

Offenders with personality disorders are of considerable concern in relation to criminal recidivism. Those discharged from secure hospitals re-offend at a rate two to three times higher than that of patients with mental illness (Bailey and MacCulloch, 1992; Steels et al., 1998). A recent meta-analysis of 58 longitudinal outcome studies of mentally disordered offenders found that antisocial personality disorder predicts both general and violent recidivism (Bonta, Law and Hanson, 1998).
Substance misuse plays a role in the risk of recidivism, since it:

- exacerbates underlying personality traits (as mentioned earlier), impulsivity and aggressiveness being common among personality-disordered offenders
- has a direct and adverse effect on attention, reasoning, impulse control, and problem-solving skills, such that crime and violence are more likely
- may cause economic hardship that then leads to crime
- may lead to involvement with those who encourage crime
- may interfere with treatment, whether psychological or pharmacological.

2.10 Treatments for substance misuse are well developed.

There is a wide range of effective treatments for substance misuse (National Institute on Drug Abuse, 1999). These include:

- detoxification
- maintenance prescription
- antagonist prescription
- therapeutic communities
- motivational enhancement therapy
- counselling and psychotherapy
- cognitive-behaviour therapies
- family and relationship therapies
- community reinforcement
- combinations of the above.

Alcohol and drug education has a dubious reputation, with some very well-designed and comprehensively researched school-based programmes proving ineffective (Rosenbaum and Hanson, 1998). However, commentators in the UK have taken a more optimistic approach, saying that community-based, multicomponent, and interactive programmes can be effective (Allott, Paxton and Leonard, 1999). Obviously, what works with school pupils and adult offenders may differ entirely, but the message seems to be that education is only successful when it broadens out into what approaches a comprehensive cognitive-behavioural skill-based programme.

Treatment of substance-misusing offenders in prisons in the United States (US) has been influenced heavily by the therapeutic community movement. Drug-free therapeutic communities that use the 12-step approach to abstinence, especially where there is post-release aftercare, have shown promise in reducing recidivism (Wexler, 1997). Cognitive-behavioural approaches, including self-monitoring, goal-setting, self-control training, interpersonal skills training, relapse prevention, and lifestyle modification, have also shown signs of success with offenders (Baldwin et al, 1991; Day, Maddicks and McMahon, 1993; Peters and May, 1992; Platt, Perry and Metzger, 1980). Shewan et al (1996) evaluated a prison-based programme that included reduction prescribing, along with group-work and counselling, finding that participants used fewer drugs, less often, and in lower amounts compared with programme non-completers.
2.11 Treatment outcomes are poorer for personality-disordered substance misusers, but nevertheless they can improve.

Personality-disordered substance misusers participating in general substance misuse treatment programmes are frequently singled out for study. Treatment gains are generally less in personality-disordered compared to non-personality-disordered substance misusers, yet treatment does lead to reduced substance misuse and symptomatology over time (Brooner et al, 1998; Cecero et al, 1999; Kokkevi et al, 1998; Linehan, et al, 1999). Substance misuse treatment has also been shown to reduce crime in those with antisocial personality disorder, although not those with borderline personality disorders (Hernandez-Avila et al, 2000). Looking at specific traits, motivational enhancement therapy is particularly effective with clients who are high in anger (Project MATCH Research Group, 1997).

People with comorbid personality disorder, particularly antisocial personality disorder, are more likely to drop out of substance abuse treatment, but there is evidence that this may actually be related to comorbid depression rather than personality disorder (Kokkevi et al, 1998). Since treatment completion is important to a good outcome, it is crucial to assess for and treat depression in substance misusers, with or without personality disorders, although it is worth bearing in mind that withdrawal from substances may actually be the cause of low mood. Nevertheless, antisocial personality-disordered people who complete substance abuse treatment, as they often do when the treatment is compulsory, show good outcomes (Hernandez-Avila et al, 2000).
3. Substance Misuse, Mental Illness and Crime

3.1 Substance misuse and mental illness commonly co-occur.

High rates of comorbidity of severe mental illnesses, such as schizophrenia or bipolar disorder, and substance misuse are evident in non-forensic samples of people with a mental illness. An epidemiological survey of the general population in the US identified comorbidity rates of 47 per cent in people with schizophrenia, 56 per cent in those with bipolar disorder, and 32 per cent for those with affective disorders (Regier et al, 1990). This means that, compared with those without a psychiatric diagnosis, people with schizophrenia are 4.6 times more likely to have a substance misuse disorder, with bipolar disorder 6.6 times more likely, and affective disorder 2.6 times more likely. Alcohol disorders were twice as prevalent as other drug disorders. Similarly high rates of comorbid mental illness and substance misuse have been identified in psychiatric patient samples (see reviews by Johns, 1997; Smith and Hucker, 1994).

In a UK regional secure unit, 62 per cent of schizophrenic patients were identified as problematic substance users (Wheatley, 1998). Among special hospital patients suffering from schizophrenia, between 7.6 per cent and 15 per cent have comorbid substance misuse disorders (Corbett, Duggan and Larkin, 1998; Taylor et al, 1998). Alcohol-related problems have been identified in 18 per cent of male special hospital patients, and alcohol abusers show more serious criminality, and are responsible for a disproportionately high number of murder and manslaughter offences (Thomas and McMurran, 1993). Reasons for relatively low prevalence rates in special hospital patients remain unclear, but it is strongly suspected that substance misuse is under-recorded. Among prisoners, 19 per cent of receptions have been identified as suffering from a mental illness (Birmingham et al, 2000). Compared with psychiatric inpatients matched for age, sex, and diagnosis, prisoners suffering from major schizophrenic and affective disorders show higher substance disorder comorbidity. Also, although they show better psychosocial functioning, they tend to be more violent (Côté et al, 1997).

3.2 Mental illness and substance use may be linked through an underlying personality disorder.

As we have seen in the previous section, personality disorder and substance use are strongly connected, particularly where there is a pathway of early temperament problems, flourishing into childhood conduct disorder, and persisting into adult antisocial or borderline personality disorder. A similar pathway has been identified in some mentally ill offenders, and those who have a criminal history that antedates the onset of mental illness have been called the 'early-starter' type (Hodgins, Côté and Toupin, 1998). Childhood conduct disorder has been found to predict later schizophrenia and bipolar disorder, and increased rates of antisocial personality disorder have been identified in both of these major mental disorders (Carlson and Weintraub, 1993; Robins and Price, 1991). Furthermore, patients with mental illness and antisocial personality disorder are
more likely to have a comorbid substance abuse disorder than mentally ill patients without a personality disorder (Hodgins, Côté and Toupin, 1998). These observations suggest that personality disorder may be the underlying factor explaining the comorbidity of mental illness and substance use in some cases.

### 3.3 Substance misuse may be a risk factor for mental illness.

Stress-vulnerability models of schizophrenia hold that some people are psychobiologically vulnerable to mental illness and that stressors of various types can trigger psychiatric disorder, with substance use being one stress factor. People with a mental illness use substances for the same reasons as most other people, for example mood management, alleviating boredom, lack of alternative activities, and association with substance-using peers. They may, however, have more risk factors for substance misuse than most, in that they are more prone to low moods, are less likely to be gainfully employed, may live in neighbourhoods where substances are more readily available, and are more likely to befriend people who drink or use drugs. Those with better premorbid adjustment are those most likely to have a comorbid substance abuse disorder, possibly because they are more sociable and therefore more exposed to drinking and drug-using opportunities. Despite a persistent belief in the self-medication hypothesis, there is no strong evidence that mentally ill people choose specific drugs to medicate specific symptoms, but rather that, like most people, they use what is most readily available in their social context, typically alcohol and cannabis (Lehman et al, 1994; Mueser, Bellack and Blanchard, 1992).

The supersensitivity hypothesis holds that people with a mental illness are exceptionally susceptible to the effects of drugs and alcohol (Mueser, Drake and Wallach, 1998). Patients with schizophrenia appear to experience more adverse effects of substances at lower levels of consumption than non-mentally ill people, and are less successful in maintaining symptom-free use (Drake and Wallach, 1993). Cognitive theories of schizophrenia emphasise the role of cognitive impairment. As stated earlier, substance use in itself impairs cognitive functioning, with such impairment potentially permanent, which may add to the risk of mental illness (Mueser, Bellack and Blanchard, 1992). Once mental illness is being treated, substance use may interact with prescribed medication to limit, or even negate, its effectiveness.

There have been prospective studies of substance users to see if they develop mental illness, and long-term follow-up studies of people diagnosed as mentally ill following substance abuse. These indicate that although substance use may trigger psychiatric disorder, there is little evidence that thereafter the mental illness differs from a condition that develops without the aid of substances. However, the onset of substance-induced mental illness is at a younger age (Mueser, Drake and Wallach, 1998). Nevertheless, substance misuse can contribute to increased symptom severity, speedier relapse to mental illness, and more numerous complicating problems, such as poor psychosocial adjustment (Bartels, Drake and Wallach, 1995). In some cases, offending will emerge concurrently with psychiatric symptoms, and this type of mentally ill offender is called a 'late-starter' type (Hodgins, Côté and Toupin, 1998).
3.4 The possibility of substance-induced psychosis should be carefully investigated.

Many drugs induce transient psychotic symptoms that are similar to those found in schizophrenia. For example, hallucinogens can induce a variety of psychotic symptoms, cannabis can induce panic and paranoia, and alcohol withdrawal can cause hallucinations and delusions.

It is important to distinguish acute and transitory psychoses from chronic psychiatric conditions before a medico-legal disposal is made. Johns (1997) points out that diagnostic confusion should be avoided by attempting to distinguish true psychosis from the following conditions: intoxication mimicking functional psychosis, withdrawal states, and chronic hallucinosis induced by substance misuse. Hodge (2000) notes that ‘transitory’ symptoms can last as long as substance use persists, take some time to remit, and reinstate quickly if substance use starts again, all of which can lead to a mistaken diagnosis of a primary, rather than a secondary, mental illness.

3.5 Substance misuse by people with a mental illness increases the likelihood of crime.

A prospective study of alcohol-abusing male schizophrenics showed them to be 25 times more likely to commit violent crimes than mentally healthy men, but non-alcohol-abusing schizophrenic men only four times more likely (Räsänen et al, 1998). Hodgins, Lapalme and Toupin (1999) followed up psychiatric patients for two years after discharge, finding that more of those patients suffering from major affective disorders than from schizophrenia committed violent offences, and that drug use but not antisocial personality disorder predicted violence in this group. Looking at mental illness and substance abuse, Swanson (1994) identified that mental illness increases the risk of violence by a factor of three, but substance abusers presented twice the risk of violence over people with a mental illness only. Those with both mental illness and substance abuse were most violence-prone of all, although there is little increase in risk over those with only a substance misuse diagnosis, and the findings relate to all types of mental illness except anxiety disorders.

Amongst schizophrenic special hospital patients with a comorbid substance use disorder who had committed a violent or homicidal index offence, 43 per cent claim to have taken drugs or alcohol at the time of the offence. This is a smaller proportion than that for personality-disordered patients, but nonetheless of a magnitude that causes concern (Corbett, Duggan and Larkin, 1998). Medication non-compliance adds to the risk of violence in mentally ill people with a substance abuse problem, although not in those without a substance misuse problem (Swartz et al, 1998). Furthermore, in this group, violence is most strongly associated with drinking, and the predictors of violence are being male, young, and of low socio-economic status.

Some researchers argue that the violence risk factors in mentally disordered offenders are highly similar to those of the non-mentally disordered, and that they are largely unrelated to mental disorder (Harris and Rice, 1997; Bonta, Law and Hanson, 1998). It
appears that, to a large degree, substance use affects most mentally ill people in the same way that it affects others in leading to crime. However, little is known about the process whereby substance use and mental illness interact to increase the likelihood of violence, though that increase is not great in magnitude over substance misuse alone.

3.6 Mentally ill substance abusers require integrated treatment.

Minkoff (1989) remarked that designers of programmes for the treatment of comorbid mental illness and substance misuse face the challenge of developing ‘an integrated treatment philosophy that incorporates both mental health and substance abuse treatment in a unified conceptual and programmatic framework’ (page 1031). To illustrate the need for integration, Mueser, Bellack and Blanchard point out that it is conceptually unsound, and very possibly damaging, to treat substance-abusing people who are mentally ill using the confrontational tactics employed by some addictions services. In contrast, mental illness is treated with tolerance and support. The evidence for the effectiveness of integrated treatment programmes is weak (Ley, Jefferey, McLaren, & Siegfried, 2001), although integrated treatment programmes require the same clinicians to treat both mental illness and substance misuse in the same setting, with the same philosophy, and such programmes have shown reduced rates of hospitalisation and substance abuse (see review by Drake et al, 1993). Without treatment, rates of substance misuse remain stable (Bartels, Drake and Wallach, 1995).

In addition to the principle of integrated treatment, effective intervention with mentally ill substance abusers includes:

- assertive outreach
- motivating people to change
- intensive supervision
- attention to broader issues in life such as relationships, work, leisure, and accommodation
- a longitudinal approach, bearing in mind that there can be relapse to both mental illness and substance misuse (Drake et al, 1993).

Clearly, the introduction of integrated, intensive, multimodal programmes would have implications for staff training.
4. Substance Misuse, Learning Disability and Crime

4.1 People with learning disabilities are less likely to abuse substances.

There is very little literature on the role of alcohol and drugs in the lives of people with learning disabilities. Reviews of the little that has been published on alcohol use acknowledge that, amongst people with learning disabilities, the levels of abstinence are high, and the levels of problematic drinking are correspondingly low. However, of those that do use alcohol, a high proportion are prone to misuse (McGillicuddy and Blane, 1999; Simpson, 1998). Those that do misuse alcohol appear similar to other populations in that they are mostly single males, living alone, who are more likely to smoke tobacco, use soft drugs, experience consequent work problems and get into trouble with the law. Common offences are public intoxication, disturbing the peace, assault, indecent exposure, breaking and entering, and driving whilst intoxicated (Krishef and DiNitto, 1981; McGillicuddy and Blane, 1999). Suppositions have been made regarding why people with learning disabilities drink, and these include a desire to join ‘normal’ society, meet people, and fill their leisure time, but these suppositions are not empirically supported (Simpson, 1998).

4.2 Programmes need to be adapted for people with learning disabilities who do need treatment.

Substance misuse treatment for people with learning disabilities is typically simpler, more behavioural, less confrontative, more directive, more educational, of longer duration, and more likely to involve the client’s family (Krishef and DiNitto, 1981). Rather than using an altogether different approach, it seems more that styles of presentation and interaction are modified to suit the needs of people with learning disabilities, for example by being highly interactive and using material with visual impact (McGillicuddy and Blane, 1999; McMurran and Lismore, 1993). There is also evidence that a shift in emphasis may be appropriate, for instance by focusing on developing a range of leisure activities as alternatives to drinking in pubs (Lindsay et al, 1991). Substance misuse treatment is not, however, readily available to people with learning disabilities, perhaps because of the effort involved in adapting treatment programmes, the need for intensive individual work, and the disconnectedness of substance misuse and learning disability services (Campbell, Essex and Held, 1994).
Three priority research questions are presented here, as requested, although the research possibilities markedly exceed these.

5.1 Assessment

Forensic mental health professionals need to know how to assess comorbid mental disorder and substance use, both to avoid misdiagnosis and to get a comprehensive clinical picture. What we know as ‘dual diagnosis’ should be deconstructed to guide the professional to examine all of the following areas together:

- mental illness
- personality disorder
- learning disability
- mood disorders
- the misuse of alcohol
- the misuse of various illicit drugs
- the inter-relationships among these.

Neuropsychological status should also be assessed, since the prevalence of impairment in mentally disordered offenders is high (Lumsden, Chesterman and Hill, 1998). This is important in that impairment may increase vulnerability to mental disorder, substance use and violence, and thereafter substance use and violence may cause impairment that exacerbates mental disorder and violence (Tracy, Josiassen and Bellack, 1995).

Areas to address have been identified (Sinha and Easton, 1999), and a comprehensive needs assessment schedule could be developed, taking into account the problems in relying on self-reported substance use in people with a mental illness (Mueser, Bellack and Blanchard, 1992). A structured assessment schedule could be augmented with currently available psychometric tests, yet these need to be validated on mentally ill offenders. Separate versions may be required for those in secure settings who may not have had access to substances for many years, and those in the community who are currently able to access substances. A comprehensive assessment would help integrate the treatment of substance misuse with treatment of mental disorder (Côté et al, 1997), and information gained at assessment could answer questions about who does best in the long-term.

5.2 Treatment

Integrated treatments for comorbid mental disorder and substance abuse have generally been rather slow to develop, perhaps because of the separateness of mental health and substance abuse services. Mental disorder symptoms often present the greater urgency
for treatment, with substance misuse treatment being deferred. Further, in secure settings, even though substance abuse is recognised as a recidivism risk factor, it does not pose a problem with regard to day-to-day management of a patient, and thus deferment is made easy. Occasionally, it is assumed that substance misuse will simply ‘clear up’ once the mental disorder is successfully treated.

The development of effective treatments, tested using appropriate research methodologies, together with the collecting of long-term outcome data, is crucial for dually diagnosed mentally disordered offenders. Much work is need in addressing the complex question: what works best with whom under what conditions? This guides researchers in addressing the following questions:

- What works best? i.e. treatment type, intensity, and duration
- With whom? i.e. which diagnostic groups (Axes I and II), what types of substance, what client characteristics (e.g. age, sex, ethnicity, neuropsychological status, cognitive capacities, and personality traits, such as impulsivity and aggressiveness)
- Under what conditions? i.e. venue (prisons, hospitals, and the community), therapist qualities, and whether treatment is voluntary or mandatory.

A starting point might be to design treatments according to the US Government's National Institute on Drug Abuse's research-based guidelines on the principles of effective drug addiction treatment (1999). These are reproduced in the Appendix. Multimodal treatments in particular require examination, that is treatments that include psychiatric, psychological, and community-support components.

### 5.3 Longitudinal studies

Researchers agree that prospective longitudinal studies are important to the understanding of mental disorder, substance use, and crime (Mueser, Drake and Wallach, 1998; Swanson, 1994). Longitudinal studies could measure, amongst other things:

- mental disorder, including a wider range of mental illness diagnoses than most of the research currently addresses
- psychological factors, including neuropsychological functioning and executive cognitive functioning
- mood states
- types and quantities of substances used
- details of incidents of violent or other crimes
- links between crime and various symptom patterns, e.g., paranoia, antisocial beliefs
- the person’s interpretations of the relationships among mental disorder, substance use and crime.

Such research should be theory-driven, examining hypotheses about the development, inter-relationships, maintenance, and cessation of mental disorder, substance use, and crime. This information would inform prevention and treatment endeavours.
In order to commission research effectively, research funding opportunities could be advertised in two major areas - addictions and forensic mental health.

### 6.1 Addictions

An advertisement could be placed in *Addiction*, the UK-based journal of the Society for the Study of Addiction. In addition, leaders of key addiction research groups could be approached, including Professor Nick Heather (Newcastle), Professor Jim Orford (Birmingham), Professor Ray Hodgson (Cardiff), Professor John Davies (Strathclyde), and Professors Michael Gossop, Michael Farrell, and John Strang (Maudsley Hospital).

### 6.2 Forensic mental health

Advertisements could be placed in leading UK journals, such as *Legal and Criminological Psychology*, *Criminal Behaviour and Mental Health* and the *Journal of Forensic Psychology*. Forensic mental health professionals working with substance-misusing offenders could be approached, namely John Hodge and Glen Thomas (Rampton Hospital), Marie Quayle and Dr David Forshaw (Broadmoor Hospital), and Dr Andrew Johns (Denis Hill Unit).
Appendix: Principles of Effective Treatment

(National Institute on Drug Abuse, 1999)

1. No single treatment is appropriate for all individuals.

2. Treatment needs to be readily available.

3. Effective treatment attends to multiple needs of the individual, not just his or her drug use.

4. An individual’s treatment and services plan must be assessed continually and modified as necessary to ensure that the plan meets the person’s changing needs.

5. Remaining in treatment for an adequate period of time is critical for treatment effectiveness (minimum three months).

6. Counselling (individual or group) and other behavioural therapies are critical components of effective treatment for addiction.

7. Medications are an important element of treatment for many patients, especially when combined with other behavioural therapies.

8. Addicted or drug-abusing individuals with co-existing mental disorders should have both disorders treated in an integrated way.

9. Medical detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug use.

10. Treatment does not need to be voluntary to be effective.

11. Possible drug use during treatment must be monitored continuously.

12. Treatment programmes should provide assessment for human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS), hepatitis B and C, tuberculosis, and other infectious diseases, and counselling to help patients modify or change behaviours that place themselves or others at risk of infection.

13. Recovery from drug addiction can be a long-term process and frequently requires multiple episodes of treatment.


treatment. New York: Guilford Press.


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