

Drug misuse in older people: old problems and new challenges

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ARTICLE

SUMMARY

Very little attention has been paid to the invisible epidemic of substance misuse among older people in the UK. This article looks at the prevalence of substance misuse in the people over the age of 60. The reasons for difficulty in diagnosing substance misuse are explored and ways to improve diagnostic ability are discussed. Substance misuse leads to severe physical and psychiatric morbidity that is being managed by meagre resources. The article provides recommendations on specific issues related to interventions, biological and psychosocial, and training of psychiatrists.

DECLARATION OF INTEREST

None.

In this article, we discuss the extent of drug use and dependence among older people, the problems that arise and their management. The population referred to will be mainly over 60 years of age and drug use discussed will not include those whose sole substance misuse is alcohol and/or nicotine, because these have been extensively studied. Box 1 clarifies our use of terms.

Extent and factors

Holroyd & Duryee (1997) showed the overall prevalence of substance use disorders in their geriatric psychiatry out-patient clinic to be about 20%. The US Epidemiologic Catchment Area study (Anthony 1991) showed that the lifetime prevalence of drug misuse and dependence was 0.12% for older men and 0.06% for older women, with lifetime prevalence of illegal drug use among older men and women being 2.88% and 0.66% respectively.

Fernandez & Cassagne-Pinel (2001) comment that understanding of drug addiction in elderly people should not be reduced to physiological addiction to a substance but should be understood in terms of a complex process requiring an analysis of psychological addiction (Box 2). Older patients who begin their drug misuse after the age of 65 are more likely to misuse alcohol and rarely turn to illicit drugs (Peterson 1998). Indeed it would seem that those who have had long-term misuse from an earlier age have different characteristics to those who start their misuse in late life. This important distinction has an impact on prognosis and treatment outcomes.

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Substance misuse among elderly people has received little attention within mental health services in England and Wales (Widlitz 2002). This is partly due to the erroneous opinions in the literature from the 1960s that substance use disorders were seldom seen after middle age, long-term drug addicts died prematurely or recovered spontaneously, late-onset addiction was rare and use of illegal drugs by older adults was restricted to a small group of ageing criminals (Atkinson 2002). Time has proved that this population 'will not necessarily die', 'go away' or 'mature out of it' (Beresford 1995). Data from the Norfolk Regional Drugs Health Information Unit showed a 15-fold increase in the number of referrals of patients over 60 between 2003 and 2006 (data available from the authors on request).

Research in substance misuse and old age psychiatry has also been hampered by the unpopularity of the specialties, difficulty in obtaining reliable clinical data and fragmented services usually excluding older people. Data from the UK Office for National Statistics Study of Psychiatric Morbidity for 2002 suggest that lifetime experience of any illicit drug use is 24 per 1000 in the 65–69 age group and 34 per 1000 in the 70–74 age group (Coulthard 2002). The same study showed that drug use in the previous year among the same population was 10 and 6 per 1000 respectively.

BOX 1 Substance misuse

In this article 'misuse' is used as an umbrella term that covers the following:

- *occasional use*, including acute intoxication without complications (ICD–10 criteria: World Health Organization 1992) not amounting to harmful use, abuse or dependence
- *harmful use*, as defined in ICD–10
- *abuse and dependence*, as defined in ICD–10 criteria
- *abuse* as used by authors whose studies we quote

Misused drugs

Benzodiazepines and hypnotics

Although a reduction of benzodiazepine use had been demonstrated in community settings (Schmidt 1998), improved recognition of anxiety disorder and reduction in the use of atypical antipsychotics have led to a renewed increase in the use of benzodiazepines. In a nationally representative British sample of people aged 65 or older (Morgan 1988), the prevalence of hypnotic drug use was 16%. The rate of use was 13% among people aged 65–74 and 20% among those aged 75 or older. Durations of use were from 1 to 5 years in 13% of the sample, from 5 to 10 years in 19% and for more than 10 years in 25%. Among the benzodiazepine users 71% reported daily use and 77% reported that they had been taking benzodiazepines for at least 2 years.

Although addictive potential for zopiclone has been suggested to be less than for benzodiazepines, there are case reports of emergence of addiction. Hence, caution should be taken when prescribing this agent for insomnia (Cimolai 2007). Although there has been a surge in the use of non-benzodiazepine sedative hypnotics (such as zopiclone), benzodiazepines and opioid analgesics continue

to be the commonly misused drugs among older adults (Blow 2001).

Higgitt (1988) demonstrated that in elderly people, depending on the pharmacokinetics of the particular benzodiazepine, physical dependence could arise without dose escalation. The duration of treatment, higher dose level, shorter pharmacokinetic half-life and higher milligram potency of the agent are associated with increased risk of benzodiazepine dependence.

Patient factors include prior or concurrent alcohol dependence or sedative drug dependence, chronic insomnia as the target symptom for which the drug is prescribed and coexisting chronic painful physical illness or personality disorder. In Lechevallier *et al* (2003) use of benzodiazepines was associated with symptoms of depression or anxiety (women: odds ratio OR = 2.6; men: OR = 4.4) and with regular use of at least three non-psychotropic drugs (women: OR = 2.0; men: OR = 1.8). Fernandez & Cassagne-Pinel (2001) have suggested that benzodiazepine addiction in elderly people acts as psychological/existential medical care.

Opioids and cocaine

In a study of elderly primary care patients on low-dose opioid analgesics for a year, 40% met ICD-10 criteria (World Health Organization 1992) for dependence syndrome (Edwards 2002). There has been epidemic increase in the use of cocaine and opiates by US trauma care patients (Soderstrom 2001). In an American study, Aurora *et al* (2000) report the prevalence of cocaine in an inner-city elderly population to be six times higher than estimated by the National Household Survey of Drug Abuse (www.oas.samhsa.gov/cocaine.htm) in 1997. An American study among older adults (over 60 years) attending an emergency department found that 2% tested positive for cocaine. Rates of older adults entering treatment for cocaine use are estimated at 0.1% among those aged over 65 (Rivers 2004). Although opiate pain relief is an essential part of palliative treatment for chronic illnesses, this has led to varying degrees of misuse, ranging from inappropriate use to dependency. This implies that palliative prescribers should balance between the benefits and the possible harm from misuse of opiate-based prescribing.

There have been sporadic observations of the use of illicit substances by older persons susceptible to influence by younger loved ones who use drugs. According to Atkinson (2002) opioid misusers are often men who have survived their addiction for years, led socially isolated lives and have been secretive about drug use. They have tended to avoid law enforcement agencies, often continue to

BOX 2 Risk factors for substance misuse in the elderly

Predisposing factors

- Family history
- Previous substance misuse/dependence
- Personality traits
- Social norms

Factors that may increase substance exposure and consumption level

- Gender (men: alcohol, illicit drugs; women: sedative hypnotics, anxiolytics)
- Chronic illness associated with pain (opioid analgesics, cannabis), insomnia (hypnotic drugs), anxiety (anxiolytics)
- Long-term prescribing (sedative hypnotics, anxiolytics)
- Care-giver over-use of medication (institutionalised elderly)
- Life stress, social isolation
- Negative affects (depression, demoralisation, anger)
- Family collusion
- Bereavement (male widowers)
- Boredom and disposable money

Factors that may increase the effects and abuse potential of substances

- Age-associated drug sensitivity (pharmacokinetic and pharmacodynamic factors)
- Chronic medical illnesses
- Other medications (drug–drug interactions)

(Adapted from Atkinson 2002)

support their drug habits through legal employment and tend to enter methadone maintenance as they become too old to obtain drugs illicitly.

Emerging evidence is that alcohol dependence and a history of childhood abuse are associated with misuse of illicit or prescribed opioids among older adults (Menninger 2002). Increasing numbers of older people are presenting with drug problems (data available from the authors on request) and are on methadone maintenance treatment (Badrakalimuthu 2010).

A study that looked at older adults visiting emergency departments found that use of cocaine among older adults was associated with relatively young age (66 years), male gender and a diagnosis of alcohol or drug misuse (Rivers 2004).

Other drugs

Blazer & Wu (2009) studied more than 10 000 people over the age of 50 and reported that 2.6% had used cannabis and 0.41% had used cocaine in the past year. However, the misuse ('abuse or dependence') rates were much lower, at 0.12% for cannabis, 0.18% for cocaine and 0.33% for any drug.

For drugs such as stimulants and hallucinogens there are no reliable data available. However, in a study of more than 50 000 people aged over 55, 12.6% reported that opioids (legal and illegal) were their primary substance of misuse and 1.3% reported prescribed sedatives, tranquilisers and stimulants as their primary substance of misuse (Drug and Alcohol Services Information System 2004). A projective study by Gfroerer *et al* (2003) estimated that among 244 000 older adults abusing drugs, the most common drugs of misuse were cannabis (42%), cocaine (36%), pain relievers (25%), stimulants (18%) and sedatives (17%).

Chronic and painful diseases are associated with the use of cannabis in elderly people. Pain increases the drive to use any drug that produces euphoria and some studies have reported severe misuse of cannabis (Trafton 2004). Women are at the highest risk of misuse of prescription drugs (Patterson 1999), whereas men are more likely to misuse stimulants, sedatives and tranquilisers. Previous or current misuse of illicit substances is associated with misuse of prescription drugs (Simoni-Wastila 2004).

Inappropriate and over-the-counter medications

The Drugs Services Research Survey in the USA (Batten 1992) reported that 10.1% of a representative sample of individuals discharged from drug user treatment admitted to non-medical use of more than one prescription drug in the 30 days

before admission; 17.7% said that prescription drugs were their drugs of choice. One in ten older people is receiving a prescribed drug that is potentially inappropriate (Gottlieb 2004). Problems are recognised to occur both with over-the-counter remedies, such as laxatives, analgesics and antihistamines, and with prescribed drugs, including diuretics, benzodiazepines and antidepressants.

On average, elderly people are prescribed twice as many medications as working-age adults. Prescribing is often less rational, with less stringent monitoring, particularly in institutional settings, and there is increased complexity of medications, hoarding and drug-sharing (McGrath 2005).

Psychotropic drug misuse is four times greater among women than men and the risk of dependence is increased if the women are widowed, less educated, of lower income, in poor health and with reduced social support (King 1994). Simoni-Wastila & Yang (2006) reported that 11% of older women misuse prescription drugs. An association may exist between age-related physical morbidity (such as arthritis) and misuse of medications which may partly be due to difficulties that older individuals have in reading and following instructions. Risk factors in elderly people include personality disorders, somatoform disorders, anxiety, sleep disturbance and adjustment disorders (Mossley 1985).

Polysubstance misuse

Past studies showed that multiple illicit drug use in elderly people has been largely limited to ageing criminals and long-standing opioid addicts (Finlayson 1988). Polysubstance misuse usually takes the form of coexisting dependence of alcohol and either prescribed sedatives or opioid analgesics (Finlayson 1994). However, prevalence data from UK regional drugs databases indicate that patterns of drug use are changing, with more similarities to younger drug-using populations (data available from the authors on request).

A study conducted in Pennsylvania reported that 77% of prescription drug users were on drugs that interacted with alcohol and 19% reported concomitant alcohol use. Sixteen per cent of opioid analgesic and benzodiazepine users reported concomitant alcohol use (Pringle 2005). Of all emergency department visits involving opioid analgesics, 72% were associated with multiple drug misuse (Gfroerer 2003).

Diagnosis

Difficulties in diagnosing drug dependence

Retirement, isolation and lack of corroborative information can reduce the possibility of diagnosing

drug misuse in elderly people. An audit conducted in Norfolk in 2005 revealed that 60% of elderly people admitted to an acute psychiatric ward had no documented notes on drug or alcohol history (data available from the authors on request). The same study reported that junior doctors felt that it was inappropriate to ask patients about their drug or alcohol history, believing that it would be a negative finding or might cause offence, and reported that they had not received appropriate training for assessment and treatment of drug misuse in elderly people.

In a study by McInnes & Powell (1994), the medical staff on general hospital wards identified only 3 out of 88 problem users of benzodiazepines and of those identified, only 2 benzodiazepine users were considered for referral to drug and alcohol services.

Substance dependence or misuse may be mistaken for depression and dementia. Delirium, a common presentation of withdrawal in elderly patients, may be misattributed to other causes (Foy 1995). Whitcup & Miller (1987) report benzodiazepine dependence and withdrawal being initially overlooked in elderly patients who do not, or cannot, disclose their daily use of these agents. The ensuing course of illness was often misdiagnosed as myocardial infarction, hypertensive crisis or delirium. The ICD-10 criteria (World Health Organization 1992), with classic features such as craving, may be absent and the older patient may be in denial with not much information being available upon direct questioning. Ageism, lack of awareness, complexity of presentations with overlapping symptoms between substance dependence, physical illness and psychiatric disorders can obscure substance misuse. Relatives eager to safeguard the reputation of the family may try to deny the existence of any problem. Substance use and misuse among ethnic subgroups remains a much-understudied area.

Improving diagnosis

There are many ways to improve the chances of diagnosing substance misuse in elderly people (Box 3). Good history-taking skills, the use of motivational interviewing technique, a good knowledge of diagnostic criteria and physical and psychiatric sequelae of drug misuse, and liaison with other medical colleagues involved in managing the elderly patient would also increase the chances of accurate diagnosis.

Consequences

Alterations in the experience and interpretation of sensory input, comorbid medical illness

and pharmacological interactions can lead to biomedical problems in elderly people. Significant physical and psychiatric problems can occur with misuse in the absence of physical or psychological dependence.

Substance misuse and mental health

Frischer *et al* (2005) found a 27% increase compared with the general population in comorbid psychiatric illness and substance misuse in elderly patients attending primary care; benzodiazepines with a consequence of confusion were the most common drugs involved. Blixen *et al* (1997) reported that 37.6% of elderly psychiatric hospital patients had a substance use disorder in addition to a psychiatric disorder. Of this dual diagnosis group, 29% misused both alcohol and other substances, made significantly more suicide attempts (17.6%) and 5% of the over-60 population had overdosed on drugs that they had misused.

Eighty per cent of people with a psychoactive drug disorder also had a disorder involving alcohol or a psychiatric comorbidity. Among older adults admitted to hospital with prescribed drug dependence, 32% had mood disorder, 28% had organic mental disorder, 27% had personality disorder, 16% had somatoform disorder and 12% had anxiety (Finlayson 1994).

Substance misuse and physical health

Older adults with substance misuse disorders make greater use of healthcare resources than

BOX 3 Improving diagnosis

- Vigilance and a high degree of suspicion
- Review of regular medication
- Monitoring of prescriptions by general practitioner, pharmacist
- Routine screening while taking history
- Careful history-taking in at-risk groups (elderly with chronic pain, depression, long-term illness, etc.)

Further drug/alcohol assessment if any of the following are observed:

- unexplained cognitive impairment and neurological symptoms
- fluctuating motor activity
- autonomic symptoms on physical examination
- sudden changes in social and financial situation
- unexplained abnormal liver function tests

Corroboration by:

- home visits
- third-party information with consent

those without. They also tend to utilise emergency departments frequently (Simoni-Wastila 2006).

Physiological changes in elderly people, such as altered lean body mass or reduced kidney function, can dramatically alter the serum level of drugs, especially in people with comorbid chronic physical illness or an acute infection. Natural progression of physical illness such as liver disease caused by hepatitis C might mean that the effects of drug use are evident only in old age.

There is a significant relationship between psychotropic drugs and falls (Lord 1992). Evidence shows that elevated liver enzymes, hepatitis, pancreatitis, hypertension, arrhythmia and lung disease may also be indicative of substance misuse in elderly people (Menninger 2002). Rosen *et al* (2008) reported a high rate of physical health problems: arthritis (54.3%) and hypertension (44.9%) being more common, with more than half reporting a subjective sense of poor health.

Apart from symptoms of tolerance and physical dependency, opioid misuse is associated with increased risk of sedation, impaired motor coordination with codeine and propoxyphene and substantial impairment of vision, inattention and impaired motor coordination with oxycodone and meperidine (Ray 1993).

Lofwall *et al* (2005) reported that, compared with a younger cohort, the older group who began using illicit substances in late life had significantly more medical problems and worse general health than the younger group.

The impairment produced by benzodiazepines can represent a more severe compromise than the same dose given to younger people (Woods 1995). Benzodiazepines may contribute to respiratory insufficiency in patients with pulmonary disorders and potentiate the effects of alcohol and opioids. Benzodiazepine use in elderly people is associated with falls (Neutal 1996), road-traffic accidents (Neutal 1995), hip fracture (Wagner 2004) and cognitive impairment (Foy 1997). Benzodiazepine withdrawal delirium occurred most frequently in older patients with an increase of neuropsychiatric complications (Wetterling 2002). Serious and distressing discontinuation symptoms occur in as many as 90% of patients who have been taking low daily doses. Grand mal seizures occur in 20–30% of people dependent on benzodiazepine whose withdrawal is untreated.

Drug use and cognition

Cognitive impairment from drug use might be overlooked, misdiagnosed and mistreated in elderly patients. Physical illness that impairs sensory and motor systems, prescribed medication use and functional psychiatric illnesses can

affect the cognitive assessment. Cognitive function is also influenced by variations in the quantity and duration of substance use and the phase of intoxication or withdrawal.

Impairments have been reported in long-term memory, psychomotor speed, and learning and retention of new information in elderly people taking diazepam (Hinrichs 1987), and in verbal memory, visuospatial ability and psychomotor activity after withdrawal from long-term use of benzodiazepines (Barker 2005). Interestingly, Habraken *et al* (1997), hypothesising that benzodiazepine-related cognitive impairment may increase with age, observed a significant improvement in cognition in patients with dementia when these drugs were withdrawn. Unfortunately, specific consequences of misusing substances other than benzodiazepines have not been reliably studied.

Cognitive impairment, such as problems with verbal abstraction, may cause inability to take advantage of treatments that require higher-order cognitive processing, such as learning new problem-solving strategies.

Treatment

It is unfortunate that 40% of older adults who misuse substances do not seek addictions treatment, either because they are unaware of the risks or because they simply do not wish to (Jinks 1990). There is very little research into the comparative efficacy of various approaches to treatment for substance misuse among older adults. One of the major difficulties in studying treatment effects is the lack of a substantial sample size. The typical exclusion of elderly people from clinical trials of pharmacotherapy for drug dependence makes it difficult to offer substantiated advice (Gossop 2003).

Despite the sparse evidence base, it seems sensible to address substance misuse in elderly people as one would in working-age adults.[†] The obvious general principles are to stabilise then reduce consumption, treat coexisting problems and arrange appropriate psychosocial intervention (such as counselling and/or motivational interviewing) to reduce relapse. If this approach fails, in-patient treatment in a psychiatric unit, with detoxification if indicated, may be beneficial. Follow-up in the community with a key-worker may include signposting to supportive psychotherapy, counselling or 12-step self-help programmes.

Benzodiazepines and hypnotics

It can be very difficult to persuade elderly people to give up sedatives, but gradual discontinuation is often indicated. Psychosocial factors maintaining their use should be managed. If prescription

[†]See for example Luty J (2003) What works in drug addiction? *Advances in Psychiatric Treatment* 9: 280–7; Seivewright N (2003) Invited commentary on: What works in drug addiction? *Advances in Psychiatric Treatment* 9: 287–8. Ed.

of sedatives is necessary, the physician should try to ensure that the patient understands the likelihood of physical dependence and potential withdrawal symptoms after prolonged use. The standard guidelines for tapering and discontinuing benzodiazepines and hypnotics in working-age adults may need to be tailored to the needs of elderly patients.

Opioids

Elderly methadone-dependent patients are more likely to be seen in geriatric settings (Miller 1991; Gurnack 2002), are less likely to request detoxification and tend to continue the dose of methadone that they received when they were younger (Hiltunen 1995; Gurnack 2002). Gurnack *et al* (2002) also reported that older patients on methadone maintenance tend to prefer higher doses. They also face a variety of physical and psychosocial obstacles in accessing maintenance treatment programmes. Treatment for older adults with opioid dependence should include expert medical advice because of frequent comorbid medical conditions and the metabolic changes associated with ageing.

Despite such difficulties, patients who had a long history of opioid misuse tended to stay in treatment programmes (Firoz 2004). Saxon *et al* (1996) reported that old age predicted retention in methadone maintenance treatment at the end of 18 months. Their psychosocial profiles and the benefits of maintenance treatment are similar to those in younger patients.

The other main group of older opioid-dependent patients are those with severe dependence on analgesic medication. Prescribed medication may be supplemented with over-the-counter or illicitly obtained drugs or drugs prescribed for a relative or friend. High-dose medication in those referred for specialist treatment is more usual. Assessment of underlying pain is essential, ideally in collaboration with a pain specialist, and cognitive approaches to pain management can be helpful. The likelihood of underlying depression requires consideration and if depression is identified it should be treated before opiate reduction or withdrawal. A change to longer-acting opioids allows easier reduction. Expert advice should be sought regarding the practicalities of treatment.

Over-the-counter and inappropriate medications

Apart from physicians, pharmacists are in a unique position regarding surveillance of repeat prescriptions and supervision of over-the-counter sales to the public to help in monitoring the use of such medications. McGrath *et al* (2005) recommend

that community pharmacists, in conjunction with general practitioners and physicians, have a responsibility towards reducing misuse among older people. The role of the community pharmacist should include a thorough assessment of the patient's problems before supplying medicines.

The important treatment issues for general practitioners, geriatricians and psychiatrists are to be aware of the possibility of addiction, to review medications regularly and to investigate and manage psychosocial factors that might be triggering misuse.

Associated alcohol misuse

Primary and specialty care providers can be trained to provide motivational, brief alcohol interventions targeted at older patients in a range of healthcare settings. Guided self-management and in-depth relapse prevention work would be useful in obtaining a better prognosis. Emphasis should also be placed on non-drinking social activities in the context of the person's circumstances and social support networks. It is reasonable to assume that such techniques could be successfully applied to drug problems.

In general, the management of associated alcohol misuse is the priority before addressing other substance dependencies because of the effects of alcohol on cognition and mood and the risks to physical health.

Prognosis

Once a drug misuse problem is identified, the evidence suggests that there is good reason to be confident because older people will respond as well as, and perhaps better than, younger people (Fitzgerald 1992). Satre *et al* (2003; 2004) report that elderly patients are more likely to have abstinence as a goal and that they do better than younger cohorts, especially long term.

Service provision

Philp (2004), in his report *Better Health in Old Age*, comments that age discrimination in mental health services needs further attention so that services developed for working-age adults are available to older adults on the basis of need, not age. Despite this, drug and alcohol services have been funded to cater for only the 16–65 age group and are usually managed within adult psychiatry. The clinical skills of staff in drug and alcohol services are usually restricted to the adult age group. In US studies, older substance-using patients received services oriented more towards medical management than towards rehabilitative substance-misuse treatment or psychiatric care

(Moos 1993). However, older people with drug misuse and their carers often have complex needs that cross service boundaries.

There are bound to be different views on whether older people with drug misuse come under old age services or drug services, or whether there should be separate specialist 'old age drug misuse' services (Box 4).

The ideal requirements of elderly patients who misuse drugs are specialist multidisciplinary team involvement with multiagency treatment programmes. The involvement of older people in the design of such services should be pivotal.

Education and training

Geriatric physicians, old age psychiatrists and general practitioners should be trained to diagnose and care for elderly drug misusers. Elliott *et al* (2001), studying the impact of feedback based on audit, found that such teaching improved prescribing and the impact of such an intervention was still evident after 6 months. Gill *et al* (2001) showed that inappropriate prescriptions reduced when a geriatric medicine specialist reviewed the patient. As a part of their study, they sent a follow-up letter suggesting safer alternatives and this educational initiative changed 37.9% of potentially inappropriate prescriptions from the prescribing

physician. This model may be appropriate for those with more major problems of substance misuse, using collaborations between old age physicians, drugs services and psychiatric services.

Conclusions

There is evidence to demonstrate that drug misuse in elderly people constitutes a major public health problem influencing health and social services. Awareness of this problem must be increased through education of the public and professionals. Social and health services should work collaboratively with the substance user through refined care pathways and produce pragmatic treatment plans.

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BOX 4 Drug services for older people

What should such a service look like?

- Accessible through multiple referral routes
- Well networked with community resources
- Strong links with older persons mental health services
- Provide targeted information for older service users
- Have sites of consultation in primary care or general hospitals

What would it do?

- Improve detection and engage in treatment
- Manage optimistically
- Provide methods of harm reduction
- Detox and maintenance treatments
- Psychological assessments and therapies
- Liaise with primary and secondary care to provide physical and mental healthcare
- Provide social interventions including working with relatives
- Teach, train and research
- Reduce prejudice and stigma

(After Department of Health 2001)

MCQ answers

1 d 2 a 3 e 4 a 5 b

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MCQs

Select the single best option for each question stem

1 Lifetime experience of illicit drug misuse in the 65–69 age group is:

- a 10 per 1000
- b 10 per 100
- c 24 per 100
- d 24 per 1000
- e 24 per 10000.

2 Factors that increase the risk of substance misuse in elderly include all but:

- a women being more predisposed to using alcohol than men
- b care-giver overuse of medication
- c bereavement
- d age-associated drug sensitivity
- e family collusion.

3 Diagnosing substance misuse in the elderly could be improved by:

- a rigid adherence to ICD–10 criteria
- b ageism
- c attributing autonomic symptoms to pre-existing physical illness
- d attributing cognitive impairment to dementia
- e requesting information from the general practitioner about prescribed medications.

4 Regarding prognosis, choose the incorrect statement:

- a elderly patients are more likely to have controlled drug use as a goal than younger ones
- b old age predicts retention in methadone maintenance treatment at the end of 18 months
- c older patients are less likely to request detoxification for opioid dependence than younger patients

d older patients on methadone maintenance tend to prefer higher doses

e patients who have a long history of opioid misuse tend to stay in treatment programmes.

5 Regarding benzodiazepines, choose the incorrect statement:

- a studies report an improvement in cognition of patients with dementia when they remain abstinent
- b chronic toxicity causes subtle manifestation at high doses
- c benzodiazepine use in elderly causes road traffic accidents
- d serous discontinuation symptoms are observed in 90% of the elderly on low-dose benzodiazepines
- e irritability is a common withdrawal symptom.