

## 9 Eating disorders and substance use

### 9.1 Eating disorders

Eating disorders are more common in women than in men<sup>(119, 120)</sup>. However, it is important that these disorders are not overlooked in men<sup>(3)</sup>.

Eating disorders are a group of disorders that include anorexia nervosa, bulimia nervosa and eating disorders not otherwise specified.

#### 9.1.1 Anorexia nervosa

Anorexia nervosa is characterised by a significant weight loss as a result of compromised eating, obsessive fears of being overweight and the voluntary pursuit of thinness. Anorexia is a chronic relapsing illness with one of the highest rates of mortality among psychiatric disorders.

Two main sub-types of anorexia nervosa include the:

- Restricting type where the individual restricts food intake.
- Binge eating/purging type where the individual alternates between binge eating and self induced vomiting, laxative or diuretic misuse<sup>(340, 341)</sup>.

A 'binge' is defined as the consumption of an excessive amount of food in a short period of time, during which the person experiences loss of control of their behaviour.

#### Management approaches

Studies into the pharmacological treatment of anorexia are sparse and results for those that have assessed atypical antipsychotics and antidepressants are inconsistent.

In general, approaches to the management of people with anorexia nervosa involve<sup>(3, 342)</sup>:

- Restoring weight to a normal range and medical monitoring of physical status. Specialist input may be required in the resuscitation of low weight individuals.
- Reducing the distorted perception of body image and related consequences.
- Medications can be prescribed if indicated. However, there is good evidence for non-drug treatment of anorexia.

For further information please consult:

*Anorexia nervosa: A treatment guide for consumers and carers:*

<http://www6.health.gov.au/internet/main/publishing.nsf/Content/mental-pubs-a-anorex>

### 9.1.2 *Bulimia*

Bulimia is characterised by episodes of binge eating followed by compensatory behaviours to rid the body of calories and an obsession with weight and shape.

There are two main types of bulimia (reflecting the compensatory behaviours)<sup>(342)</sup>:

- Purging type where the individual resorts to vomiting or uses laxatives, diuretics or enemas<sup>(340, 341)</sup>.
- Non-purging type involving excessive exercising or fasting.

#### **Management approaches**

In general, approaches to the management of people with bulimia involve:

- Medical monitoring of medical status, particularly for electrolyte disturbance and the consequences of repeated purging behaviours.
- CBT which has been shown to be useful in the treatment of bulimia and is generally regarded as the first line of treatment<sup>\*\*\*\*(343, 344)</sup>.
- Different classes of antidepressants (TCAs, SSRIs, MAOIs) have shown good efficacy and tolerability in the treatment of bulimia<sup>(3, 342, 344)</sup>:
  - SSRIs (fluoxetine being the most widely studied) reduce bulimic symptoms by reducing the frequency of binge eating and purging as well as anxious and depressive symptoms<sup>\*\*\*\*(344)</sup>.
  - High doses may be required to be effective with inadequate dosing responsible for discontinuation of treatment<sup>\*\*\*\*(344, 345)</sup>.
- Preliminary evidence exists for the additional efficiency of combined CBT and medication management although further studies are required to confirm this<sup>\*\*\*\*(344)</sup>.

## 9.2 Comorbidity with eating disorders

### 9.2.1 *Comorbidity with substance use*

- People with bulimia or bingeing/purging behaviours are more likely to use substances or have a substance use disorder than people with anorexia (in particular the restricting type) or the general population<sup>(346-351)</sup>.
- Results from studies of bulimia and anorexia populations suggest that those people who use pharmacological methods of weight control (including laxatives, diet pills and diuretics) are more likely to use more traditional substances such as stimulants<sup>(352)</sup>.
- A variant of eating disorders has been described where people have difficulty with 'multi-impulse control'<sup>(353)</sup>. These people are more prone to problems in a variety of areas of impulse control in the setting of their bulimic illness, including substance use. People with comorbid bulimia and substance use problems are more likely to attempt suicide, be impulsive and have personality disorders<sup>(350, 351, 354-356)</sup>.
- The risk of substance use disorder in people with eating disorders continues over time and should be an ongoing part of assessment of these people<sup>(347, 354, 357, 358)</sup>. However, age-related tapering of substance use may decrease the incidence<sup>(347, 359)</sup> as does retention in treatment<sup>(347)</sup>.

- Drug use may assist with weight control and may be a part of impulsiveness and loss of control<sup>(360)</sup>. It may also be a part of a risk taking or self harming pattern of behaviour<sup>(361)</sup>.

### 9.2.2 Comorbidity with other mental disorders

- People with eating disorders across all types have higher rates of mental disorders in general (reported up to 97% comorbidity)<sup>(346, 347)</sup>, in particular, mood and anxiety disorders<sup>(346, 347, 354, 362)</sup>. These other mental disorders increase the severity and chronicity of the eating disorder as well as impact on the willingness to accept treatment<sup>(346, 363)</sup>.
- People with bulimia or bingeing behaviours have high rates of other impulse control disorders (e.g. compulsive buying and pathological gambling) and, combined with personality disorders, show high rates of novelty seeking behaviour<sup>(364-367)</sup>.
- In addition, consistent personality differences exist between people with anorexia and bulimia<sup>(351, 356)</sup>. It has been suggested that the less inhibited and more impulsive personality style associated with bulimia may predispose people to substance use<sup>(341, 346, 351, 363)</sup>.
- People with anorexia (particularly the restricting type) have higher rates of obsessive compulsive disorders<sup>(346, 368)</sup>.

### 9.2.3 General management approaches to comorbidity

- Practitioners should always anticipate mental disorders and substance use comorbidity in people with eating disorders<sup>(346, 347)</sup>, particularly those with binge/purging types.
- Treatment and prevention should be directed towards assisting individuals at risk in understanding the nature of their emotions and subsequently developing positive coping strategies to handle them<sup>(350)</sup>.
- The disruptive symptoms of eating disorders can interfere with therapy for substance use disorders<sup>\*\*<sup>(357)</sup></sup> and vice versa.
- When assessing people with eating disorders, a detailed drug history should be elicited and should include specific inquiry about alcohol and stimulants as well as diuretics, laxatives and thyroxine.

## 9.3 Major clinical issues with eating disorders and cannabis/hallucinogen use

- Cannabis has been shown to be one of the most commonly used substances across eating disorders and its frequency of use has been correlated with the frequency of bulimia.
- Management of cannabis use should be determined by the level of impact associated with its use.
- In the absence of other proven forms of treatment, CBT is, at present, the most widely employed form of treatment for cannabis use.

### 9.3.1 *Effects of cannabis and other hallucinogens on eating disorders*

- Cannabis has been shown to be one of the most commonly-used substances across eating disorders and its frequency of use has been correlated with the frequency of bulimia<sup>(341, 351, 352, 360)</sup>.
- As cannabis has been shown to cause appetite stimulation<sup>(369)</sup>, its role in people with eating disorders is complex.
- Use of LSD in people with eating disorders has been shown to be of low frequency<sup>(347)</sup>.

### 9.3.2 *Interactions between cannabis and other hallucinogens and therapeutic agents for eating disorders*

- Cannabis can exacerbate the sedative effects of antidepressants such as tricyclics<sup>x</sup>.
- LSD may induce a serotonin syndrome (Appendix 1), therefore caution should be exercised when prescribing SSRIs or MAO-I<sup>x(127)</sup>.
- Cannabis and antidepressants are metabolised by CYP 450 enzymes which may result in the inhibition or induction of either drug group. Therefore, individuals should be monitored closely to ensure outcomes are appropriate<sup>x</sup>.

### 9.3.3 *Management approaches to comorbid eating disorders and cannabis or other hallucinogen use*

- Management of cannabis use should be determined by the level of impact associated with its use.
- Abstinence from cannabis is a difficult goal to achieve in cannabis dependent people<sup>(128)</sup>.
- In the absence of other proven forms of treatment, CBT is, at present, the most widely employed form of treatment for cannabis use<sup>\*\*\*\*(128)</sup>.

## 9.4 Major clinical issues with eating disorders and alcohol use

- Alcohol is one of the most commonly used substances amongst people with eating disorders, in particular, those with purging behaviours.
- Alcohol can exacerbate the sedative effects of some antidepressants such as tricyclics and mirtazepine, which may be used in the management of some eating disorders.
- Alcohol dependence and the eating disorders need to be addressed in an integrated manner.
- CBT is effective for treatment of eating disorders (in particular bulimia) and there is no evidence that alcohol dependence affects the efficacy of CBT negatively.
- Assistance with stress management (structured problem solving, coping skills therapy) has been found to be effective in the treatment of alcohol use and is useful for people with eating disorders.

### 9.4.1 *Effects of alcohol on eating disorders*

- Alcohol is one of the most commonly used substances amongst people with eating disorders, in particular, those with the purging behaviours<sup>(341, 351, 352)</sup>.
- People with bulimia or bingeing/purging behaviours have higher rates of alcohol use than people with anorexia (up to twice as likely in people with the restrictive type of anorexia) and control groups without eating disorders<sup>(341, 346, 349-351, 354, 355, 362, 363, 370, 371)</sup>.
- People with anorexia have reported avoiding alcohol to prevent weight gain from the calories it contains<sup>(341)</sup>.
- The majority of people affected by eating disorders and alcohol-use disorders report that the eating disorder developed first<sup>(363)</sup>. This may explain the fact that eating disorder symptoms (vomiting and exercise) seem to be predictive of the course of alcohol-related problems in people with comorbid alcohol use and eating disorders<sup>(357)</sup>.
- People with both bulimia and alcohol dependency have higher rates of self-harm, and borderline personality disorders, and poorer outcomes than those without alcohol-related problems<sup>(370, 371)</sup>.

### 9.4.2 *Interactions between alcohol and therapeutic agents for eating disorders*

- Alcohol can exacerbate the sedative effects of some antidepressants such as tricyclics and mirtazepine which may be used in the management of some eating disorders. Alcohol toxicity and risk of overdose may occur through the inhibition of CYPs involved in the metabolism of alcohol<sup>(133)</sup>.
- Interactions between antidepressants and acamprosate used to treat alcohol dependence are minimal as are interactions between antidepressants and disulfiram and naltrexone also used to treat alcohol dependence<sup>(134)</sup>.

### 9.4.3 *Management approaches to comorbid eating disorders and alcohol use*

- Alcohol dependence and the eating disorder need to be addressed in an integrated manner<sup>(3, 372)</sup>.
- Antidepressants have been shown to reduce depressive symptoms and alcohol consumption in depressed people with alcohol dependence<sup>(130)</sup>. However, there have been no specific studies of the role of SSRIs in people with eating disorders and alcohol dependence.
- CBT is effective for treatment of eating disorders (in particular bulimia)<sup>(343, 344)</sup>. There is no evidence that alcohol dependence affects the efficacy of CBT negatively. However, no available studies have reported effectiveness of CBT in managing alcohol use and eating disorders<sup>(3, 372)</sup>.
- Naltrexone has been shown to be effective in the treatment of alcohol dependence<sup>(141, 235, 236)</sup> and in early studies shows some efficacy in reducing bingeing/purging behaviours<sup>(3, 372)</sup>. However, it has not been rigorously tested for the combination of eating disorders and alcohol use<sup>(372, 373)</sup>.
- Assistance with stress management (structured problem solving, coping skills therapy) has been found to be effective in the treatment of alcohol use, is useful for people with eating disorders and can be easily integrated with pharmacological approaches<sup>(3)</sup>.

## 9.5 Major clinical issues with eating disorders and opioid use

- People with eating disorders do not commonly use opioids.
- Fluvoxamine<sup>xxx</sup>, fluoxetine<sup>xx</sup>, norfluoxetine<sup>xx</sup> and paroxetine<sup>x</sup> can inhibit buprenorphine and methadone metabolism through inhibition of the CYPs involved in their metabolism.
- If the person is opioid dependent, stabilise the use of opioids preferably using opioid pharmacotherapy such as buprenorphine or methadone.
- Where possible, it is important to avoid the use of opioid antagonists due to their appetite suppressing effects.

### 9.5.1 Effects of opioids on eating disorders

- People with eating disorders do not commonly use opioids.
- Endogenous opioid peptides have been shown to play a role in food intake. The use of opioid agonists on a regular basis (in contrast with the acute setting) generally results in an increase in food intake, whereas opioid antagonists decrease food intake<sup>(374, 375)</sup>.

### 9.5.2 Interactions between opioids and therapeutic agents for eating disorders

- Fluvoxamine<sup>xxx</sup>, fluoxetine<sup>xx</sup>, norfluoxetine<sup>xx</sup> and paroxetine<sup>x</sup> can inhibit buprenorphine and methadone metabolism through inhibition of the CYPs involved in their metabolism<sup>(148-150)</sup>. This can result in an increase in plasma opioid pharmacotherapy concentrations and potential overdose. This can be a particular issue during induction onto methadone; however, the risk may persist even after stabilisation has occurred<sup>xxx(151-155)</sup>.
- Fluvoxamine is the most potent inhibitor of methadone and buprenorphine metabolism and is the most clinically relevant. Therefore, it should be avoided<sup>xxx(150)</sup>.
- Fluoxetine and paroxetine should also be avoided<sup>xx</sup>.
- Citalopram and sertraline are the least likely SSRIs to have cytochrome mediated drug interactions, however, due to the theoretical potential for an interaction, caution should still be used and individuals monitored closely<sup>x(156)</sup>.
- There is an increase in sedation as well as risk of fatal overdose with opioid use and tricyclic antidepressants<sup>xx(161)</sup>.

### 9.5.3 Management approaches to comorbid eating disorders and opioid use

- If the person is opioid dependent, stabilise the use of opioids, preferably using opioid pharmacotherapy such as buprenorphine or methadone which may inadvertently also help to stimulate appetite.
- Counselling for the opioid dependence should be integrated with standard approaches to the eating disorder.
- Where possible, it is important to avoid the use of opioid antagonists due to their appetite suppressing effects when treating opioid dependence in people with eating disorders<sup>(374, 375)</sup>.

## 9.6 Major clinical issues with eating disorders and stimulant (including methamphetamine) use

- People with eating disorders may use stimulants to control appetite and to provide energy for exercise.
- MAO-Is (either irreversible or reversible) are contraindicated in people using amphetamines or MDMA. Deaths have been associated with concurrent use of moclobemide and MDMA.
- The use of stimulants at any level should be discouraged.
- CBT can be used to address stimulant use and the eating disorder.
- In particular, assistance with coping skills may assist with impulsive use of stimulants and bingeing behaviours.

Opioids

Stimulants  
(including  
metham-  
phetamine)

### 9.6.1 Effects of *stimulants* on eating disorders

- People with eating disorders may use stimulants to control appetite and to provide energy for exercise<sup>(360)</sup>. Consequently, dependence can develop.
- High rates of cocaine and amphetamine use have been observed in people with eating disorders<sup>(347)</sup>.
- Appetite suppression and weight loss have been reported to be the reason for the commencement and continuation of cocaine<sup>(340)</sup>.
- Severity of bulimia has been shown to correlate with the frequency of MDMA and amphetamine use, with users reporting that ecstasy aids in weight loss<sup>(360)</sup>.

### 9.6.2 Interactions between *stimulants* and therapeutic agents for eating disorders

- Stimulant drugs are likely to exacerbate the effects of SSRI and SNRI antidepressants in particular (and vice versa) and may result in serotonin syndrome (Appendix 1)✕<sup>(127, 179, 180)</sup>. Patients should be warned of signs of serotonin syndrome and be monitored.
- MAO-Is (either irreversible or reversible) are contraindicated in people using amphetamines or MDMA. Deaths have been associated with concurrent use of moclobemide and MDMA ✕✕✕<sup>(181, 182)</sup>.
- Fluoxetine, paroxetine and norfluoxetine can inhibit the metabolism of MDMA through inhibition of the CYPs involved in its metabolism and may therefore cause toxicity✕.

### 9.6.3 Management approaches to comorbid eating disorders and *stimulant* use

- The use of stimulants at any level should be discouraged due to the risk of dependence and, most importantly, the possibility of increased chances of toxicity.
- CBT can be used to address stimulant use<sup>\*\*\*<sup>(49, 183)</sup></sup> and the eating disorder<sup>\*\*\*\*<sup>(343, 344)</sup></sup>. In particular, assistance with coping skills may assist with impulsive use of stimulants and bingeing behaviours.

## 9.7 Major clinical issues with eating disorders and benzodiazepine use

- People with eating disorders do not commonly use benzodiazepines.
- Benzodiazepine use should be discouraged.
- If dependence has developed, then graduated withdrawal through slow reduction of dosage should be commenced.
- If long-term benzodiazepine use is indicated, then this should be monitored closely.

### 9.7.1 Effects of benzodiazepines on eating disorders

- People with eating disorders do not commonly use benzodiazepines<sup>(349)</sup>.
- Benzodiazepines have been shown to increase the palatability of food and often result in the increased consumption of food<sup>(376)</sup>.

### 9.7.2 Interactions between benzodiazepines and therapeutic agents for eating disorders

- There is an increased risk of sedation and overdose with the combination of benzodiazepines and sedative antidepressants such as tricyclics and mirtazepine<sup>✗</sup>.
- Benzodiazepines and antidepressants are both metabolised by CYP 450 enzymes which may result in the inhibition or induction of either drug group. Therefore, individuals should be monitored closely to ensure they are experiencing the appropriate therapeutic effect<sup>✗</sup>.
- Fluvoxamine will inhibit the metabolism of alprazolam, midazolam, triazolam and diazepam causing increased sedation and potential toxicity<sup>✗</sup>.
- Citalopram and sertraline are the least likely SSRIs to have cytochrome mediated drug interactions<sup>✗</sup>.

### 9.7.3 Management approaches to comorbid eating disorders and benzodiazepines use

- Benzodiazepine use should be discouraged.
- If large quantities of benzodiazepines (e.g. 40mg diazepam daily equivalent or more) are being consumed, then inpatient withdrawal to lower levels should be considered to avoid and manage seizure risk<sup>(194)</sup>.
- If dependence has developed, then graduated withdrawal through slow reduction of dosage should be commenced<sup>\*\*\*\*(194-196)</sup>, possibly after transferring the patient onto a long acting benzodiazepine.
- If long-term benzodiazepine use is indicated, then:
  - This should be subject to a contract with the patient.
  - Authorities should be advised, including registration with the relevant local government health authority.

- The seeking of additional benzodiazepines from other prescribers should be monitored (e.g. using the *Authority to release personal PBS claims information to a third party form*).
- Daily or weekly dispensing of benzodiazepines should be considered and may assist with controlling use.
- Standard management of the eating disorder should commence if the patient is willing and engaged.

## 9.8 Major clinical issues with eating disorders and **inhalant/solvent** use

- People with eating disorders do not commonly use inhalants or solvents.
- There is no literature that sheds light on managing people with comorbid eating disorders and problems relating to inhalant/solvent use.

### 9.8.1 *Effects of **inhalant/solvents** on eating disorders*

- People with eating disorders do not commonly use inhalants or solvents<sup>(347)</sup>.

### 9.8.2 *Interactions between **inhalants/solvents** and therapeutic agents for eating disorders*

- Inhalants can exacerbate the sedative effects of some antidepressants including tricyclic antidepressants and mirtazepine<sup>✕</sup>.
- Most antidepressants reduce seizure threshold and tricyclic antidepressants can cause cardiac arrhythmias. Therefore, risks should be appraised prior to commencement<sup>✕</sup>.

### 9.8.3 *Management approaches to comorbid eating disorders and **inhalant/solvent** use*

- There appears to be no literature that sheds light on managing people with comorbid eating disorders and problems relating to inhalant/solvent use.
- As with most other substances, inhalant users should be encouraged to try and reduce or cease use.
- In general with respect to inhalant/solvent use<sup>(65)</sup>:
  - Outline the harms associated with inhalant/solvent use.
  - Investigate polysubstance use as this is common.

Benzo-  
diazepines

Inhalants/  
solvents

- Standard CBT approaches to both sets of issues should be used, with particular attention to the development of:
  - Assertiveness skills (refusal skills).
  - Coping skills for controlling and managing emotions such as anger and sadness.
- Offer alternatives to inhalant use, for example, recreational activities.
- Community reinforcement approaches should be developed by mobilising the local health and welfare service system in individual care plans.
- Family interventions need to be considered, for example, increasing communication between the person and the family.
- Assertive outreach and follow-up may be required.