Eating disorders in adolescence

An approach to diagnosis and management

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BACKGROUND

Eating disorders in adolescence are complex problems that may result in significant morbidity. The majority of eating disorders begin in adolescence, a time of critical importance for growth, pubertal development, acquisition of peak bone mass and psychosocial development.

OBJECTIVE

This article presents a review of eating disorders in adolescence with particular reference to the role of the general practitioner in early recognition of disordered eating and in the ongoing management of adolescents with established eating disorders. Specific management priorities in this age group are also addressed.

DISCUSSION

Eating disorders in adolescence have significant consequences for the current and future health of the affected young person and for family functioning. Early detection and early intervention are key elements in achieving good, long term outcomes. A comprehensive approach to management that addresses physical, psychosocial, family and educational concerns is necessary. The goal of weight restoration needs to be pursued aggressively in adolescents to prevent adverse effects on future growth and bone mass acquisition.

Eating disorders in adolescents pose complex challenges for the primary care practitioner. The onset of eating disorders is overwhelmingly a phenomenon of adolescence, with 85% of eating disorders starting before 20 years of age.[1] The most serious eating disorders in terms of morbidity and mortality are anorexia nervosa and bulimia nervosa (*Table 1*). However, these are relatively rare: in women the lifetime prevalence of anorexia nervosa is approximately 0.5% and bulimia nervosa is 1–3%, with a tenth of these figures in men. 'Partial syndrome' or 'EDNOS' (Eating Disorder Not Otherwise Specified) is more common in adolescence where there is disordered eating without full diagnostic criteria for either anorexia or bulimia nervosa.

Eating disorders develop over time, often starting with the young person following a 'healthy diet'. Young people may present at any stage along the severity continuum from severe dieting to partial syndrome to an eating disorder. The spectrum of disordered eating is reported to be the third most common chronic illness in adolescent females after obesity and asthma.[2]

The causes

The aetiology of eating disorders is multifactorial and complex. Genetic factors, biological predisposition, psychological factors and socioenvironmental factors have all been causally implicated to varying degrees.

Genetics

Relatives of individuals with anorexia or bulimia nervosa have a higher risk of developing an eating disorder, with twin studies demonstrating that approximately 50% of the variance in anorexia and bulimia nervosa is explained by genetic factors.[3] Molecular research in this area is active and has revealed a number of potential regions containing candidate genes. Recent neurotransmitter research has focussed on the role of serotonin, which is thought to be implicated in the development of both anorexia and bulimia nervosa.[4]

Depression

Depression is well documented as a risk factor for the development of eating disorders in adolescence.[5] In addition, clinical features of depression can develop as a result of starvation but can improve with weight restoration.

Media

The media influences how young people perceive their bodies in relationship to idealised notions of normality,[6] with ever increasing pressure on young women – and young men – to conform to airbrushed images of 'perfection'. Although the internet provides access to many useful support sites for young people (and their families) with eating disorders, recent concerns have focussed on the large number of disturbing internet websites

Table 1. DSM-IV criteria for major eating disorders

DSM-IV diagnostic criteria for anorexia nervosa

- Refusal to maintain body weight at or above a minimally normal weight for age and height (eg. weight loss leading to maintenance of body weight less than 85% of that expected, or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected)
- Intense fear of gaining weight or becoming fat, even though underweight
- Disturbance in the way that body weight, size or shape is experienced, undue influence of body shape and weight on self evaluation, or denial of the seriousness of current low body weight
- In postmenarchal females, amenorrhoea, ie. the absence of at least three consecutive menstrual cycles (a woman is considered to have amenorrhoea if her periods occur only following hormone, eg. oestrogen administration)

Specify type

Restricting type: during the current episode of anorexia nervosa, the person has not regularly engaged in binge eating or purging behaviour (self induced vomiting, misuse of laxatives, diuretics, or enemas)

Binge eating/purging type: during the current episode of anorexia nervosa, the person has regularly engaged in binge eating or purging behaviour (ie. self induced vomiting or the misuse of laxatives, diuretics, or enemas)

DSM-IV diagnostic criteria for bulimia nervosa

- Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following:
  - eating in a discrete period of time (eg. within any 2 hour period) an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances
  - a sense of lack of control over eating during the episode (eg. a feeling that one cannot stop eating or control what, or how much, one is eating)
- Recurrent inappropriate compensatory behaviour in order to prevent weight gain such as self induced vomiting, misuse of laxatives, diuretics, enemas, or other medications, fasting, or excessive exercise
- Binge eating and inappropriate compensatory behaviours both occur on average at least twice a week for 3 months
- Self evaluation is unduly influenced by body shape and weight
- The disturbance does not occur exclusively during episodes of anorexia nervosa

Specify type

Purging type: during the current episode of bulimia nervosa, the person has regularly engaged in self induced vomiting or the misuse of laxatives, diuretics, or enemas

Nonpurging type: during the current episode of bulimia nervosa, the person has used other inappropriate compensatory behaviours such as fasting or excessive exercise, but has not regularly engaged in self induced vomiting or the misuse of laxatives, diuretics, or enemas

promoting anorexic and bulimic behaviours.[7]

Dieting

Normal adolescent eating patterns tend to involve missed meals, snacking, take away and convenience foods, and the consumption of high energy soft drinks. In the midst of these erratic eating patterns, dieting is emerging as an increasingly common behaviour among adolescent females and is occurring at increasingly younger ages. Maloney et al[8] identified that 41% of 7–13 year old girls reported some weight loss activities. In a large representative study in Victoria, Patton et al[5] reported 7% of 15 year old girls were on a severe diet, with an additional 38% engaging in moderate dieting behaviours. Concerningly, severe dieters were 18 times more likely to develop EDNOS in comparison to those who did not diet. Although only a small proportion of young people who diet develop an eating disorder, dieting is a clear risk factor.

Consequences of eating disorders in adolescence

Adolescence is a time of rapid growth accompanied by changes in body shape and composition. Nutritional disturbance at this critical time can pose significant acute and long term health risks. Acute health risks from anorexia and bulimia nervosa include haemodynamic compromise, hypothermia, electrolyte abnormalities, and cardiac arrhythmia that can result in sudden death.

The onset of eating disorders in the premenarchal female is increasingly seen in specialist services, with significant threats to adolescent growth and pubertal development, let alone future bone development. However, regardless of age, the risk of impaired acquisition of peak bone mass in adolescents (or loss of bone mass in adults) is concerning.[9] The long term effects of an eating disorder on the adolescent brain are as yet unknown, although evidence from adult studies suggests that structural and functional brain changes occurring during anorexia nervosa may not be completely reversible.[10] Eating disorders can impact significantly on the accomplishment of the normal developmental tasks of adolescence such as reduced participation in education, poor development of social relationships with peers, and delayed individuation and separation from parents. Longer term concerns of eating disorders are in relationship to risks from comorbid conditions such as depression and suicide, and drug and alcohol abuse.

Assessment

Assessment should aim to answer the following questions:

- Is there evidence of abnormal eating behaviour?
- Are there features of a diagnosable eating disorder?
- How severe is it?
- Are there associated comorbidities?
- What health care services are indicated?

Young people will often be brought to the consultation by a parent, although occasionally friends or teachers may accompany them. A full psychosocial assessment is important to

Kirsty, aged 14 years, is a year 9 student brought in by her mother who is concerned about Kirsty's eating behaviour. Kirsty frequently diets and feels 'fat' despite weight in the normal range. She rides an exercise bike for 1–2 hours per day and has recently been vomiting after meals.

General practitioners who are registered with the HIC for level I of the BOMHI can use specific Medicare items for consultations with patients on completion of a mental health assessment, plan and review cycle. A patient suffering from an eating disorder would be eligible and the process involves the following steps:

Step 1. Mental health assessment – undertaken over one or more consultations of at least 30 minutes (item 36 or 44 as appropriate)

In Kirsty's case this would involve a thorough physical and psychosocial assessment. Involving the family in this assessment process is helpful but it is important to see the young person alone for at least some of the interview. Assessment of comorbid depression using a depression/anxiety symptom screening tool such as HAD or K10 forms a baseline to check further progress.

Step 2. Mental health plan – undertaken over one or more consultations of at least 30 minutes (item 36 or 44 as appropriate)

This is a plan of action devised, tailored to and agreed on with the patient. In Kirsty's case this would include the following:

- education about risks of dieting and health consequences of eating disorders
- regular medical checks for weight, pulse, lying and standing blood pressures, serum potassium monitoring
- behavioural treatments, eg. distraction techniques after meals to reduce purging behaviour, food diary and aiming to eat three meals and three snacks per day, slow breathing and relaxation techniques for anxiety, sleep wake cycle management, activity planning
- the use of other focussed psychological strategies (eg. cognitive strategies to address automatic negative thoughts or interpersonal therapy to address relationship issues with family, peers, teachers)
- encourage the reduction of alcohol intake and other substance abuse or other risk taking behaviour (if present)
- consider referral to a specialist eating disorder service
- involvement of dietician, social worker, teacher/school counsellor, mental health professional as appropriate.

Step 3. Review – at least 1 month and up to 6 months after the mental health plan (item 2574 for a level C consultation item 2577 for level D consultation)

This stage involves a review of progress and revision of the plan if required. A repeat of the HAD/K10 can form part of the assessment of progress.

Figure 1. Using the BOMHI in treating eating disorders

understand the young person in the context of their family, peers and school environments. (Consider the HEADSS mnemonic: **h**ome, **e**ducation/employment, **a**ctivities, **d**rugs and alcohol, **s**exuality, depression/**s**uicide). It is important to see the young person alone for at least part of the consultation as many of the behaviours they engage in may not be willingly shared with the parent present, especially purging. Recognising those with EDNOS or the 'abnormal dieter' who is at significant risk for deterioration can be challenging.

History

Look for early warning signs including:

- cooking for others yet not eating
- insisting on different meals to the family
- food rituals
- avoiding eating in public
- visits to the bathroom after eating
- frequent weighing, and
- constant focus on dieting, food or exercise.

If warning signs are present, further questions should be asked to determine the presence or absence of the formal criteria for an eating disorder. These questions should address the following issues:

- weight loss (extent and rate of loss)
- fear of weight gain
- body image distortion
- amenorrhoea
- restrictive eating patterns
- purging behaviours
- binge eating
- exercise, and
- mental state, including risk assessment.

Assessment can require more than one consultation. The '3 step mental health plan' of the Better Outcomes in Mental Health Initiative (BOMHI) can be used for patients with eating disorders by appropriately registered GPs (*Figure 1*).

Examination

Every organ system may be affected by malnutrition and weight loss (*Table 2*). A detailed physical examination is vital as it clarifies immediate management priorities, especially in relationship to admission for medical stabilisation. It includes:

- measurement of lying and standing heart rate and blood pressure (to assess haemodynamic compromise)
- measurement of weight and height, with plotting on percentile charts. The young person should be weighed in his/her underclothes to ensure consistency and to minimise any risk of manipulation of weight by concealing objects in clothing
- calculation of body mass index can be helpful, although it must be plotted on weight for age charts rather than using adult norms, and
- detailed pubertal staging using Tanner charts.

Investigations

Investigations are largely determined by clinical findings, but useful initial investigations include full blood examination, erythrocyte sedimentation rate, urea and electrolytes, thyroid function test, calcium, phosphate, and magnesium. A baseline measurement of bone mineral density is recommended in adolescents with anorexia nervosa.

Management

A decision to refer to a specialist eating disorder unit will be based on the individual expertise of the general practitioner and the

severity of the illness. Engagement of more intensive interventions including mental health and dietetics is generally indicated for young patients with anorexia nervosa. Referral to specialised eating disorder services is recommended if:

- the young female is premenarchal (more aggressive nutritional intervention is necessary to ensure adequate growth)
- the eating disorder is severe (requiring hospitalisation for medical or mental health reasons)
- the young person is not improving (or getting worse) despite reasonable community based interventions, and/or
- there is significant family dysfunction, requiring close liaison between medical and mental health professionals.

The lack of regionally based specialist eating disorder services can make management of these young people very difficult. A suggested outline for management, depending on the severity of the eating disorder, is as follows:

Table 2. Clinical findings in eating disorders

Associated with starvation
Vital signs
Bradycardia (with increase in pulse rate on standing)
Hypotension
Hypothermia
Skin and hair
Lanugo hair
Hair thinning
Dry skin
Cold extremities
Gastrointestinal
Dyspepsia
Abdominal pain and bloating
Constipation
Endocrine
Amenorrhoea
Osteopaenia
Psychocognitive
Fatigue
Poor concentration
Irritability
Headache
Associated with purging
Dental erosion
Enlarged parotid glands
Reflux oesophagitis
Abdominal pain and bloating
Constipation
Metabolic
Hypokalaemia
Acidosis/alkalosis

The dieter

A young person of normal weight who is dieting should be strongly discouraged from doing so. The GP's concerns should be discussed with the patient and the parent. A clear explanation that typical adolescent dieting does not lead to long term weight loss should be provided, as well as options for adopting a healthier approach to weight and fitness such as increasing physical activity (preferably a team sport). A follow up appointment should be arranged for 4–6 weeks.

Abnormal eating behaviours

If behaviours such as severe dieting or self induced vomiting are identified, the adverse health effects of these behaviours should be discussed. The development of a 'healthier approach to eating' plan – with the involvement of a nutritionist – is often helpful. Attention to the family and school is important, as is identification of comorbid depression and anxiety, as this greatly increases the risk of developing an eating disorder over time. A follow up visit should be arranged for 2–3 weeks.

Eating disorder or EDNOS

Those with features of disordered eating should be monitored carefully. We suggest three meals and three snacks per day, and generally encourage close parent supervision. A food diary can be a helpful tool to better understand the emotional associations of disordered eating. There is no clear evidence that at this stage of disordered eating, one form of mental health intervention is better than another. The important thing is that attention is paid to the emotional world and mental health issues affecting the young person. This may involve elements of supportive psychotherapy, cognitive behavioural therapy, and family therapy.

Cognitive behaviour therapy is the therapy of choice in young people with bulimia nervosa. The role of behavioural interventions such as distraction techniques after meals to reduce purging, planning of activities that maintain social engagement around eating, and management of associated anxiety symptoms is helpful. Involvement of mental health professionals is appropriate if interventions by the GP are unsuccessful.

When to admit to hospital?

Hospital admission is indicated when:

- haemodynamic instability (bradycardia <48/minute or a postural drop in blood pressure) - a bradycardia <40/minute indicates significant instability
- significant electrolyte abnormalities (particularly hypokalaemia <3 mmol/L) as a result of vomiting, and/or
- acute dehydration because of refusal of all food and fluids.

Specialist eating disorder services differ in their length of admission. Some offer brief 2–3 week admissions for medical stabilisation while others provide longer admissions with a mental health focus. There is no evidence that one approach is better than another in improving long term outcomes.

Outpatient care

For the young person with an eating disorder who is haemodynamically stable with a normal electrolyte profile, close outpatient follow up is recommended. It is often necessary to see the patient at 1–2 weekly intervals initially, with ongoing levels of involvement dependant on progress. The 'treating team' is likely to involve a medical practitioner, a mental health professional and a nutritionist/dietician.

The role of the GP may be to monitor medical issues with the mental health professional attending to broader issues. Clarification of the case manager role is important. Frequently, the GP has a broader role, depending on his/her skills and expertise. Duration of follow up is variable. Although median time to recovery in anorexia nervosa is reported as 7 years, we see much shorter recovery times in many patients. It is our practice to continue to review young females with anorexia nervosa at least until menses has become re-established. For those with low bone mineral density, an annual assessment (covered by Medicare) is recommended until restoration of menses.

School attendance

We aim whenever possible to ensure that

the young person continues to attend school regularly. It is important to obtain their permission to liaise with a nominated member of staff at school. This liaison is useful in providing support regarding medical issues (eg. limiting physical activity) and educational issues (eg. periods of absence from school for medical reasons).

Parent support

Providing support for parents during this time is also important. Family therapy has been shown to be particularly effective in younger adolescents[11] and is frequently offered as part of the mental health treatment plan. Parents should also be encouraged to contact local eating disorder support groups (see *Resources*).

Pharmacological treatment

There is much interest about the role of drug therapy in adolescents with anorexia and bulimia nervosa. The most recent studies in bulimia nervosa have concentrated on fluoxetine, which has been shown to be effective in reducing bingeing and purging at a dose of 60 mg per day.[12] Fewer studies have investigated the efficacy of medications in the treatment of anorexia nervosa but there is evidence that fluoxetine may be useful in decreasing the relapse rate following weight restoration.[13] There is some evidence that atypical antipsychotics such as olanzapine, may be helpful in producing weight gain and reducing body image distortion in anorexia nervosa,[14] however, current evidence does not support the use of these medications as as standard therapy for eating disorders.

The key to achieving satisfactory bone mass is weight gain and commencement (or restoration) of menses. Although there are no studies to date documenting the efficacy of calcium and vitamin D supplementation, prescription of a combination product is advised.[9] To date, oestrogen therapy has not been shown to improve bone mass acquisition in severely underweight females with anorexia nervosa. Occasionally, oestrogen supplementation is used to promote the acquisition of secondary sexual characteristics in females with significantly delayed puberty.

Conclusion

General practitioners have an essential role in the early recognition and ongoing management of eating disorders in adolescents. Specific physical health concerns related to adolescence include effects on growth, pubertal development and acquisition of peak bone mass. The prognosis of eating disorders in adolescents appears to be better than in adults, highlighting the importance of early recognition and intervention.

Resources

Victoria
Victorian Centre of Excellence in Eating Disorders
8th Floor, CCB, Royal Melbourne Hospital
Grattan Street, Parkville, Vic 3052
Telephone: 03 9342 7507 Fax: 03 9342 8216
Email: ceed@mh.org.au
http://www.ceed.org.au

Eating Disorders Foundation of Victoria Inc
1513 High Street
Glen Iris, Vic 3146
Telephone: 03 9885 0318 Country Victorian callers 1300 550 236 Fax: 03 9855 1153
Email: edfv@eatingdisorders.org.au
http://www.eatingdisorders.org.au

Queensland
Eating Disorders Resource Centre
53 Railway Tce
Milton, Qld 4064
Telephone: 07 3876 2500 Fax: 07 3511 6959
Email: eda.inc@uq.net.au
http://www.uq.net.au/eda/

South Australia
Eating Disorders Association of South Australia (Inc)
Woodards House
1st Floor, 47-49 Waymouth Street
Adelaide, SA 5000
Telephone: 08 8212 1644 Fax: 08 8212 7991
Email: mail@abnasa.asn.au

New South Wales
Eating Disorders Association of NSW Inc
PO BOX 811
Castle Hill, NSW 2154
Telephone: 02 9899 5344 Fax: 02 9899 5811
For ACT call 02 6281 7511
http://www.edansw.org.au

Eating Disorders Foundation (NSW)
PO BOX 532
Willoughby, NSW 2068
Telephone: 02 9412 4499
Email: edsn@edsn.asn.au
http://www.edf.org.au

ACT
Women's Centre for Health Matters
Building One, Pearce Centre, Collett Place
Pearce, ACT 2607
Telephone: 02 6290 2166
Info line: 02 6286 2043
Email: wwchm@interact.net.au

Northern Territory
Northern Territory Association for Mental Health
PO Box 950
Parap, NT 0804
Telephone: 08 8981 4128

Tasmania
Community Nutrition Unit
3rd Floor, Peacock Building
Repatriation Centre, Hampden Road
Battery Point, Tas 7004
Telephone: 03 6222 7222 Fax: 03 6222 7252

Conflict of interest: none declared.

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