

Access to special care dentistry, part 6. Special care dentistry services for young people

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IN BRIEF

- The dental team have an important role in recognising the oral features of eating disorders.
- Common mental health problems in young adults impact on oral health and have implications for the delivery of oral care.
- The relationship between dental anxiety and previous sexual abuse is well known and dentists can contribute to a positive patient experience by adjusting their approach to the specific needs of this group.

This article brings together some of the 'hidden disabilities' common amongst adolescents and young adults. Many of these conditions carry a social stigma and some are associated with secretive behaviour and even denial. The article will describe the features, management and oral implications of five eating disorders (Prader-Willi syndrome, anorexia nervosa, bulimia nervosa, binge eating disorder and pica) and three types of mental health problems (schizophrenia, obsessive-compulsive disorder and bipolar disorder). Without the input of the dental profession, and in the main the primary dental care service, all these conditions can have a detrimental effect on the dentition at a relatively early stage in life. Mental health problems are more common in adolescents and young adults than most people realise and this article will also consider the impact on oral health and delivery of dental care to young people who have experienced childhood sexual abuse.

Rather than using this article to describe conditions which are generally thought of in relation to special care dentistry for young people (such as Down's syndrome, epilepsy, etc), the authors have

taken the opportunity of bringing together some of the 'hidden disabilities' common amongst adolescents and young adults. Many of these conditions carry a social stigma and some are associated with secretive behaviour and even denial. Without the input of the dental profession, and in the main the primary dental care service, all these conditions can have a detrimental effect on the dentition at a relatively early stage in life. This article will consider eating disorders, mental health problems and the effects of sexual abuse.

Willi syndrome, is linked to a disorder of chromosome 15 and has the major characteristics of hyperphagia (appetite disorder) and oesophageal reflux, mild to moderate cognitive impairment, behaviour issues, hypotonia (affecting motor skills and delaying speech) and hypogonadism. It occurs in 1 in 12,000-15,000 of the population, with both sexes and all races equally effected, and can have a profound affect on oral health.²

The major medical concern is morbid obesity due to hyperphagia (as a result of hypothalamic dysfunction), associated with food foraging and obsession. The urge to eat is physiological and overwhelming, difficult to control and requires constant vigilance. General health and life expectancy are usually good provided weight can be controlled, but the constant need for food restriction and behaviour management may be stressful for family members, and family counselling may be required.²

Oral conditions

Several case reports have outlined the oral conditions associated with PWS in children and adults. Consistently described features include enamel hypoplasia,^{3,4} caries (which can be rampant),⁴⁻⁷ poor oral hygiene,^{4,6} oral candidiasis⁴ and 'thick, sticky saliva' or reduced

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A. EATING DISORDERS

Eating disorders (ED) are a group of related but distinct disturbances in eating behaviour which, amongst other things, can impact on oral health.¹ As the dentist can be the first person to suspect or diagnose an ED, it is important to understand the medical, psychological and dental features. This section will consider Prader-Willi syndrome, a genetically-based compulsive eating disorder, and the psychologically-based disorders of anorexia nervosa, bulimia nervosa, binge eating disorder and pica.

1. Prader-Willi syndrome

Prader-Willi syndrome (PWS), sometimes referred to as Prader-Labhart-

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salivary flow.^{2,4,8} Additionally in adults, progressive tooth wear and oesophageal reflux have also been described.⁶ The increased caries risk is attributed to high frequency intake of sugar⁵ and the altered viscosity and amount of saliva.^{2,4,8} Young *et al.*⁸ attributed the xerostomia and tooth wear to dysfunction of the major salivary glands.⁸

Dental intervention

The need for early dental consultation and preventive dental procedures is very important in managing oral health of people with PWS.^{5,7} Tooth substance loss due to erosion linked to oesophageal reflux has been managed using minimally invasive and adhesive restorative techniques.⁶

Dental treatment is not always straightforward as there can be issues with the following:

Behaviour – difficulties with transitions and unanticipated changes, such as visiting the dentist, are commonplace. They seem to peak in adolescence or early adulthood. Daily routines and structure, firm rules and limits, ‘time out’, and positive rewards are effective in managing behaviour.² Some of the techniques used to manage people with autistic spectrum disorders can help the dental team to manage people with PWS. Psychotropic medications may be used to treat related obsessive-compulsive symptoms (such as skin-picking), mood swings and depression² and can worsen the xerostomia and dental situation. Liaison with medical practitioners may be required to negotiate a medicine regime that has the least negative impact on the dentition.

Motor skills – hypotonia improves with age, however deficits in strength, co-ordination, balance and motor planning may continue. Thought needs to be given to whether brushing and preventive aids are required and how they are best used (see part 4 of this series⁹ for more information). Interestingly, proficiency with jigsaw puzzles is frequently reported amongst people with PWS, reflecting strong visual-perceptual skills.² This ability can be utilised to engage the individual in innovative oral hygiene instruction (OHI).

Cognition – IQs range from 40 to 105, with an average of 70. Even those

Table 1 Anaesthesia and Prader-Willi syndrome

Issues	Concerns
Obesity	Prone to obstructive apnoea, hypertension and diabetes
High pain threshold	May mask underlying causes of pain
Disorder of hypothalamus causing temperature instability	May be hypo- or hyperthermic No predisposition to malignant hyperthermia but still need to alert the anaesthetist and avoid depolarising muscle relaxants
Thick saliva	Can complicate airway management in conscious sedation and during extubation following general anaesthesia (GA)
Food-seeking behaviours	Prior to GA, it is assumed that there will be food in the stomach unless a carer can verify abstinence, otherwise a stomach tube is passed prior to airway intubation to ensure there is no food present
Difficult intravenous access	Obesity and lack of muscle mass may pose difficulties with IV line insertion. A stable IV line should be present in any individual undergoing anaesthesia
Behaviour problems	May be on extensive psychotropic medication. Possible interaction of these medicines with anaesthetic agents should be considered
Recovery post-anaesthesia	Drowsiness after anaesthesia may be due to the underlying somnolence and a component of central apnoea. For typical outpatient procedures, consideration should be given to an overnight observation

Source: reference 10

Table 2 The key features of anorexia nervosa and bulimia nervosa

Anorexia nervosa	Bulimia nervosa
1. Refusal to maintain body weight above or at a minimally normal weight, with body weight maintained at least 15% below that expected	1. A persistent preoccupation with food
2. Weight loss leading to less than 85% of expected weight	2. An irresistible craving for food
3. Intense fear of gaining weight or becoming fat, despite being underweight	3. Attempts to counteract the effects of overeating by compensatory behaviours, eg self-induced vomiting, laxative abuse, periods of starvation
4. Disturbance in body shape and weight, undue influence of shape on self-evaluation and denial of current low body weight	4. A morbid fear of being overweight with a clear weight goal that is rigidly adhered to

Source: reference 50

Table 3 Patient and clinician criteria in selecting schizophrenia medication

Criteria	Importance to patient	Importance to clinician
Efficacy of medication	1	5
Self-management	2	2
Clinician and carer characteristics	3	6
Medication side-effects	4	1
Subjective experiences of medication and illness	5	3
Beliefs and attitudes about medication	6	4

Scale: 1 is the most important and 6 is the least important
Source: reference 41

people with a 'normal' IQ tend to have some learning disabilities, which are usually related to attention span, short-term auditory memory and abstract thinking.² Common strengths are said to include reading ability² and consequently written or pictorial OHI is likely to be more effective than the spoken word.

Anaesthesia – a number of the general health issues associated with PWS can alter the course of anaesthesia and are summarised in Table 1.¹⁰ Whilst individuals with PWS can undergo general anaesthesia and conscious sedation safely, it should be closely monitored and provided by someone familiar with the patient and their individual medical needs.¹⁰

2. Anorexia nervosa, bulimia nervosa and binge eating disorder

The knowledge of dentists and dental hygienists related to the oral and physical cues of anorexia and bulimia is low, with dental hygienists having a better knowledge than dentists of all parameters.¹¹ However, a recent American survey of dental and dental hygiene curricula found that only 17–35 minutes were dedicated to these topics, indicating that a need for appropriate training in comprehensive care of people with eating disorders remains.¹²

Development of an eating disorder (ED) is usually multifactorial. There is no one 'trigger'. Common triggers include: low self-esteem (particularly a feeling of worthlessness or failure); negative emotions of guilt, anger and anxiety that become overwhelming; dieting, leading to an obsession with food and the pursuit of weight loss as the solution to all problems; and abuse and trauma that may have happened in childhood or adult life and may link to feelings of worthlessness.¹³

Anorexia nervosa

Anorexia nervosa (AN) means someone who has lost their appetite for 'nervous' or psychological reasons.¹³ It is defined as *an inability to maintain body weight through the intentional restriction of food and drink* that can be accompanied by increased physical activity.¹ AN occurs in 0.3% of the general population, which

includes 0.1 to 3% of teenage girls.¹ Its onset is mainly between 15 and 19 years of age, however it affects people of all ages and backgrounds and although it has often been thought of as a woman's problem, around 10% of cases in treatment are men.¹³

Its aetiology is complex and not fully understood. It is believed there is a genetic element¹ and that there is a disruption in the serotonin pathways relating to anxiety, behavioural inhibition and body image distortions.¹ The four key features of AN are set out in Table 2. There are two types of AN – the restricting type where restriction of food intake is the sole behaviour, and the bingeing/purging type where food restriction is accompanied by regular episodes of binge eating or purging behaviour. The latter may include self-induced vomiting, strenuous exercise, or misuse of laxatives, diuretics or enemas.¹⁴

Bulimia nervosa

Bulimia nervosa (BN) is more common than AN, occurring in 1 to 3% of the population, including 1% of young females and 0.1% of 15–65 year old men.¹ BN shares many clinical features and triggers with AN but goes undetected for longer, as people maintain an apparently normal weight (see Table 2), and presents later at around age 25. 'Russell's sign' of calluses on the back of the hand or fingers may be present from using them to induce vomiting.¹⁴

The median duration of AN and BN is up to six years, with significant mortality (4–20%) from medical complications and suicide in AN¹⁵ and a lower mortality of 0.3% associated with BN.¹⁶

Binge eating disorder

Binge eating disorder (BED) is the presence of recurrent binge eating episodes without any of the compensatory purging behaviours seen in BN.¹ Prevalence is in the order of 2.5% and most people are overweight, with some being dangerously obese. The aetiology is unclear but risk factors are previous dieting, obesity and emotional stress.¹ Like BN, BED follows clear cycles or patterns. Recovery involves gaining an understanding of the patterns of eating and emotion that underlie the ED.¹³

Diagnosis of eating disorders

EDs are often difficult to diagnose as behaviour is secretive and, even when detected, may be denied or treatment declined.¹⁷ The dental professional (DP) has an important role to play in identifying ED as tooth wear, caused by self-induced vomiting, is a frequent sign.^{18,19} Thus the DP has the challenging and valuable role of motivating the patient to seek psychiatric help and dental care.²⁰ Despite this responsibility, it would seem that few dentists are involved in managing patients with ED.²¹ Female dentists are more likely to pick up on and refer patients with ED for treatment.²¹

Oro-dental effects of AN and BN

The principle oro-dental effects of ED are erosion, parotid gland hypertrophy and changes to saliva. There is conflicting evidence regarding whether there is an increase in caries as a result of ED. Overall the literature indicates no difference between people with ED and the general population, despite a seemingly higher risk.¹ Similarly there is conflicting evidence in the literature regarding periodontal disease in ED.¹

Erosion is the principle dental effect of ED. It results mainly from self-induced vomiting but can be contributed to by a diet high in fruit (Fig. 1), often eaten for its laxative effect, and by reduced salivary flow. Self-induced vomiting is common, with 88% of women with BN and 81% of women with more than one eating disorder practising this behaviour.²² The pattern of erosion has been classically described as affecting the palatal and labial surfaces of the upper teeth secondary to vomiting, reflux and regurgitation (Fig. 2). Occlusal surfaces can also be affected. Surprisingly, there is no correlation between the severity of erosion and the duration or frequency of vomiting, or whether erosion is due to vomiting or high quantity of fruit intake.¹ It has been claimed that the distribution of eroded teeth is the same whether due to gastric or dietary acids.¹ Paszyńska *et al.* contested this and showed people with BN had a higher number and severity of areas of enamel erosion.²³ Exposed dentine, secondary to erosion, can be painful and may be a presenting symptom.¹



Fig. 1 Erosive areas of enamel caused by sucking lemons at a young age in an effort to control weight, showing signs of decay in later life

Parotid gland hypertrophy is a common condition among people with AN and BN²⁴ and has even been used to diagnose BN in the absence of any other signs.²⁵ AN and BN have also been associated with sialadenitis in palatal minor salivary glands presenting as bilateral, symmetric, painless, soft swelling of the hard palate.²⁶

Saliva – while there is no difference in stimulated salivary flow rates in ED, dry mouth and reduced resting flow rates have been reported as more common in BN. Bicarbonate concentration in saliva is lowered, reducing its buffering capacity. However, as this occurs in people with BN both with and without erosion, it is unlikely to play a part in the aetiology.¹⁴ Saliva viscosity was increased only in the group of people with BN who had erosion and may play a part.¹⁴

Dental management

Having diagnosed ED, the DP has the task of motivating the patient, while respecting their integrity and sense of self-worth. The history, including that of tooth surface loss, needs to be taken in a non-judgemental and empathetic manner, with maintenance of confidentiality.²⁷ Patient communication and involvement in decision-making and treatment planning is important to prevent exacerbation of feelings of lack of control. Co-operation is essential, as patients with eating disorders have greater levels of dental anxiety than the

general population and a high proportion only attend the dentist when they have symptoms.²² The primary goal of dental care is to preserve the remaining teeth and to prevent further erosive loss of dental hard tissue.

Whilst it is acknowledged that caries, dentine sensitivity and periodontal disease are managed as usual, the timing of restorative treatment remains controversial. One view is that it should not be started before the ED has been treated and the patient is considered to have a stable prognosis.¹⁹ The converse view is that restorative treatment that improves appearance and self-esteem may provide the motivation required to seek professional medical help. In view of the young age of the patients and the degree of erosion, atraumatic restorative treatment, using adhesive materials, is the preferred option.¹⁹ Figures 3, 4 and 5 provide an example of the dental damage that can be caused by erosion and how appearance can be effectively restored with appropriate dental treatment.

Preventive advice should include dietary and oral hygiene instruction and instigation of a high content fluoride regime. Tooth-brushing after vomiting is generally considered inadvisable as the demineralised dentine is more susceptible to toothbrush abrasion.²⁷ However, research has shown no difference in severity of erosion between people who brush immediately post-vomiting and those who delay.²⁷



Fig. 2 Palatal tooth loss due to erosion

The dental team should be mindful that individuals with ED may relapse into previous negative eating behaviours. Monitoring of tooth wear using the usual methods of models and photographs is also a way of monitoring the ED, and it has been suggested that regular dental recalls may be a way of intercepting these habits.²⁸

3. Pica

Pica is an ED defined as the persistent eating of non-nutritive substances (eg coal, soil, chalk, paper etc) or an abnormal appetite for some things that may be considered foods, such as food ingredients (eg flour, raw potato, starch).²⁹ These actions must persist for more than one month, at an age where eating such objects is considered developmentally inappropriate, to be considered as pica. The name comes from the Latin for magpie, a bird which is reputed to eat almost anything.²⁹

The aetiology of pica is not understood. However, it is the most common ED seen in people with developmental and learning disabilities and in autistic spectrum disorder, occurring most commonly in those aged 10-20 years. It occurs in 20% of children seen in mental health clinics. It also occurs in around 20% of pregnant women, but usually remits at the end of the pregnancy.³⁰

The history and physical symptoms depend on the substances consumed. Commonly ingested substances in children and adolescents include animal droppings, sand, clay, soil, insects and pebbles. Pica carries a risk of mortality/morbidity depending on the substances eaten. The risks include ingestion of poisons such as lead, exposure to infectious agents from soil or faeces, gastro-intestinal complications secondary to blockage or perforation and direct nutritional effects.



Fig. 3 Dental erosion as a result of an eating disorder, impacting on appearance



Figs 4 and 5 Minimally invasive restoration of dental erosion using adhesive dental materials to restore appearance and self-esteem

Consequently, pica has been described as a form of self-harm, even though there is no initial intention to cause harm.³⁰

Oro-dental features are variable and result from trauma to soft tissues, nutritional deficiencies or tooth wear. Pica should be considered a possible diagnosis when faced with an atypical pattern of tooth surface loss. A number of cases have been reported in the literature.³¹⁻³³ The chewing of abrasive items leads to cupping and grooving of dentine and sharp enamel rims, in contrast to the smooth enamel seen in erosion. Also the wear facets do not match in the intercuspal position, as in attrition.¹

Management: if dentine exposure causes sensitivity, this needs to be dealt with. However, unless the underlying ED is managed, restoration of lost tooth substance will be short-lived. Close liaison with healthcare professionals is advocated prior to provision of dental treatment of people with this condition.

B. MENTAL HEALTH PROBLEMS

Mental health problems are more common in adolescents and young adults than most people realise. This section will describe the features, management and oral implications of three types of mental health problems that, more often than not, have their onset in early life, namely schizophrenia, obsessive-compulsive disorder and bipolar disorder.

1. Schizophrenia

Schizophrenia is a relatively common form of psychotic illness characterised by loss of contact with reality, and may involve delusions, hallucinations, lack of insight and abnormalities of behaviour.³⁴ There is a 1% lifetime risk of developing schizophrenia. Mostly it starts between the ages of 14 and 35 years, but it can be years before help is accessed and a definitive diagnosis made and early intervention mental health teams are aimed at this age group. Life expectancy is reduced by 10 years in people with schizophrenia, due mainly to an increased risk of cardiovascular disease associated with poor diet and smoking.³⁵

Aetiology

There is strong evidence of a genetic link, with 50% of monozygotic twins

sharing a diagnosis and 10% of patients having a close family member with schizophrenia.³⁶ Schizophrenia has also been linked to structural brain abnormalities, pre- and peri-natal events, abnormalities in neurotransmitter systems and use of psychoactive substances such as cannabis. A number of reports have implicated heavy use of cannabis with an increased risk of psychotic illness, particularly schizophrenia.³⁷ The age at which cannabis is first smoked has been linked to the risk of schizophrenia, with a young age more than doubling that risk in the ensuing 15 years and the number of times cannabis was smoked (>50 times) increasing the risk six fold.³⁸ In those people with a predisposition to schizophrenia, onset may be triggered by emotionally stressful events, both positive and negative.

Clinical features

The signs and symptoms of schizophrenia are labelled as positive or negative.³⁹ Positive symptoms can be defined as 'excesses' or 'distortions' of normal mental functions and include:

- **Hallucinations** – disturbed perceptions of reality that are sensory and involve sound, sight, touch and smell. Hearing voices is the commonest type of hallucination in schizophrenia, and 'voices' may describe the person's emotions or activities, carry on a conversation, warn of dangers or tell them what to do next
- **Delusions** – false, fixed beliefs which dominate the person's mind and are contrary to their education and culture. They are often persecutory or related to irrational beliefs of being cheated, harassed, poisoned, or conspired against. Some people report bizarre delusions, eg convinced that a neighbour is controlling their behaviour with magnetic waves, that people on television are aiming special messages at them, that they are receiving radio messages through their amalgam fillings, or that their thoughts are being broadcast aloud to others. They may also have grandiose or somatic delusions
- **Disorganised thinking** – a lack of logical thought process or 'thought disorder'. It can make conversation

difficult and can result in social isolation as thoughts flash by, concentration is difficult and the individual is easily distracted. People with schizophrenia are unable to connect thoughts into logical sequences and find it difficult to decide what is or is not relevant to a situation. They and their thoughts become disorganised and fragmented

- **Agitation** – people with schizophrenia are often extremely agitated.

Negative symptoms represent a 'loss' or 'reduction' of normal functioning and include:

- **Lack of drive or initiative**
- **Social withdrawal** – leading to isolation
- **Apathy** – leading to lack of interest, reduced motivation and loss of interest in or enjoyment of life
- **Emotional unresponsiveness or 'blunting'** – causing severely reduced emotional expression and inability to show normal emotions. For example, they may speak in a monotonous voice, show little facial expression and appear extremely indifferent.

Additionally, people with schizophrenia tend to have poor diet and high cardiovascular risk. Around 70% of them smoke, usually heavily, but the association between schizophrenia and smoking is not understood.³⁵

Management

Management of schizophrenia usually involves drug therapy and psychosocial interventions. Antipsychotic drugs are categorised as 'typical' or 'atypical'. The typical antipsychotics, such as chlorpromazine and haloperidol, act by blocking dopamine receptors. Consequently, side-effects can include 'Parkinsonian' symptoms and tardive dyskinesias. Atypical antipsychotics, such as clozapine and risperidone, are now the first line treatment for newly diagnosed schizophrenia. The atypicals act on serotonin receptors, bringing a range of clinical benefits, but their side-effects include movement disorders, weight gain, sedation and dry mouth.⁴⁰ Interestingly, when making treatment choices, patients and clinicians have very different preferences,

with patients ranking efficacy of medication highest and clinicians putting medication side-effects top and efficacy fifth out of the six options given (Table 3).⁴¹

Implications of schizophrenia for oral health

Many people with schizophrenia are well controlled with medication and present no special problems in terms of routine dental care. However, aspects of both schizophrenia and its management can impinge on oral health. These include the following:

Ability for self-care – poor diet and poor motivation impact on self-care and oral healthcare. The motivation to maintain a daily oral hygiene regime may be diminished by the negative effects of the condition.⁴²

Side-effects of antipsychotic medicines:

- i. Xerostomia can have a significant impact on oral health, and an increased consumption of sweets to promote salivation and drinks containing sugar to relieve dryness has been reported in people experiencing xerostomia.⁴² Dry mouth increases periodontal and caries risk and requires a rigorous preventive regime to be put in place. It may also result in problems with speech, chewing, swallowing, poor denture tolerance, problems with retention and stability of dentures and denture trauma⁴²
- ii. Hypersalivation – paradoxically, clozapine, one of the newer atypical drugs, can cause hypersalivation to the extent of being socially embarrassing because of drooling
- iii. Agranulocytosis – a reduction in leukocyte count severe enough to contra-indicate elective dental treatment can be caused by clozapine.³⁴ However, people prescribed it should be monitored through the Clozapine Patient Monitoring Service³⁴
- iv. Tardive dyskinesia (TD) is a disorder of the central nervous system characterised by involuntary muscle contractions which force parts of the body into abnormal and sometimes painful movements or postures. They can affect any part of the body and frequently involve movements of the tongue, facial muscles and/or jaw, resulting in

tongue protrusion, retraction and facial grimacing^{42,43} that can be both distressing and embarrassing. It is caused mainly by the older typical antipsychotic drugs. Its incidence among people taking these drugs is 5% and the prevalence is 20%, with a higher risk for women than men.⁴⁴ Development of TD is dose-related, increasing with high doses of antipsychotic, and is rare with less than six months treatment with antipsychotic drugs at low doses. TD does not necessarily cease if medication is withdrawn, and may be a permanent side-effect in a significant number of people. With discontinuation of antipsychotics, around 50% of patients will have spontaneous improvement in their symptoms, although such improvement is often delayed and may take up to five years.⁴⁴ Stopping medication is not possible for some people, and the risk of relapse or psychosis must be balanced against the risk of TD.⁴⁴

Smoking can lead to an increase in periodontal disease, particularly necrotising gingivitis, candidiasis and xerostomia. The combination of alcohol misuse and smoking poses a high risk for oral cancer.^{43,45}

Oral health

Oral health tends to be poorer in people with schizophrenia than in the general population. Poor diet, effects of medication, poor motivation, substance misuse and smoking are the major factors contributing to poor oral health. Housing conditions, homelessness and access to privacy for personal hygiene can also influence oral healthcare.⁴² People with schizophrenia have more fillings, more missing teeth and fewer crowns than the general population. Also, there are fewer people with 20 teeth or more, more edentate people and fewer denture wearers in the schizophrenia group.^{35,46} Oral hygiene tends to be poor, with a correlation between the severity of schizophrenia and non-practicing of oral hygiene.^{35,46}

Dental management

The individual's ability to accept and the dental professional's ability to deliver

Table 4 Requirements for oral health regimes for people with schizophrenia

For people with schizophrenia, oral health regimes should include:

- How mental health problems can affect oral health
- Dietary advice – the effects of sugary drinks and food
- The need for effective oral hygiene and how to achieve it
- Fluoride supplementation
- The effects of smoking and substance misuse
- The effects of medication
- Xerostomia and how to reduce its harmful effects
- Reasons for regular dental attendance.

dental care can both be compromised in schizophrenia. Mood, motivation, self-esteem, cognitive impairment, the ability to understand the dental care plan plus compliance and co-operation for dental treatment all have an effect on oral care provision. This can be compounded by dyskinesia, which causes difficulties with provision and receipt of extended dental treatment, difficulties in denture construction and problems with the individual's ability to manage and control dentures.⁴² Adding to this may be fear, anxiety and dental phobia. People with schizophrenia tend to be more anxious about dental treatment than the general population and more likely to only visit the dentist when they have symptoms – 61% compared with 32% in the general population.⁴⁶ In some cases, symptoms associated with psychotic illness may severely interfere with the acceptance of oral care, delaying treatment until tooth loss is inevitable.³⁵ Access to prompt dental treatment with sedation or anaesthesia is recommended for those people unable to co-operate for routine dental care.⁴²

Behavioural factors may lead to poor compliance, unreliable attendance and late cancellation of appointments, which can be a source of frustration and resentment to staff providing the service.⁴⁷ However, this needs to be kept in the context that people with enduring mental illness may not have the ability to sustain continuing dental care and may wish only to access emergency pain relief. Others are unable to cope or

co-operate with treatment despite an urgent or felt need. Part of the provision of oral care is preventive advice to individuals and carers – see Table 4.

There will be times in the life of a person with schizophrenia when they are able to comply with this and other times when they cannot. There are also people who have experienced a single schizophrenic episode without any repetition who are fully able to comply with dental treatment.

Access to oral healthcare

Access to dental care can be difficult because of the symptoms of schizophrenia itself, the stigma still attached to mental health problems and the uncertainty of the dental team. Mental health workers use a care programme approach to assess clients' needs and to develop a single care plan to meet those needs. Unless access to oral healthcare is identified as a need by the individual, support from the mental healthcare team is unlikely.⁴² Thus, the onus sits with the dental profession to ensure that all agencies are aware of the dental facilities available, receive guidance on who can be seen in primary care and who should be referred to secondary care, and are familiar with the referral mechanisms to support patients for both emergency and continuing dental care.⁴² The dental team can also become more effective by linking into preventive programmes which promote general health, thereby reinforcing the message that oral health is an integral part of any healthcare plan.

Although access to dental care can be a problem, dental treatment can be delivered normally in the primary care setting for the majority of people with schizophrenia, provided the dental team has an understanding of the condition, its possible oral effects and its possible effect on coping with dental treatment. To this end, health professionals are urged to enter into an exchange of information with their patients to make use of their knowledge and experience of their own condition, while providing information on treatment options. The latter helps to inform patients' decision-making, empowers them to take care of themselves, helps them make predictions

for the future and assists them in assessing the competence of the professional treating them.⁴¹ It has been said that the key to success when treating people with schizophrenia lies in the patient, the carers and the health professionals working together.⁴¹

2. Obsessive-compulsive disorder

Obsessive-compulsive disorder (OCD) is a common mental health condition that affects 2% of the population. It is characterised by obsessive thoughts that cause anxiety, leading to rituals or repetitive actions that are carried out compulsively to relieve the anxiety.⁴⁸ The symptoms typically begin during adolescence or early adulthood, although at least one third of cases of OCD in adults began in childhood, often before the age of five, and only a small proportion of people develop OCD after the age of 35.⁴⁸

Obsessions are unpleasant thoughts, images or urges that keep entering the mind. Some of the common obsessions include:⁴⁸

- Unwanted thoughts, often of a disturbing nature, such as sexual or violent urges
- Feeling the need to confess to something
- Fear of making mistakes or behaving in an inappropriate way
- Fear about causing harm to other people
- Needing everything to be perfect.

People with OCD are usually aware that their obsessions are irrational or excessive. However, just knowing is not enough to stop them and treatment is required.

Compulsions are the thoughts or actions that the individual feels must be done or repeated to deal with the obsession. Common compulsions include:⁴⁸

- Constant cleaning because of fear of contamination and germs
- Repeatedly checking things, such as doors and locks
- Counting, while performing routine tasks
- Needing to do things a certain number of times or in a certain order
- Touching or arranging items in careful and neat order
- Repeating numbers, words, phrases,

prayers or a particular song over and over again, either under your breath or in your mind.

People with OCD carry out the compulsions in a desperate bid to calm the anxiety caused by their obsessions. However, relief is short-lived, the obsessive thoughts return and the ritual recommences. If unable to complete the compulsion, a severe anxiety attack can ensue due to the belief that something terrible will happen if the ritual is not properly completed. The physical symptoms of OCD are similar to those of a panic attack and include sweating, tachycardia, dizziness, shortness of breath and trembling or shaking. The thoughts and actions of OCD may become so upsetting and time-consuming that it gets in the way of work and family life, which in turn can lead to further anxiety or depression.⁴⁹

For a diagnosis of OCD to be made, the individual must realise that his/her obsessions or compulsions are unreasonable or excessive. Moreover, the obsessions or compulsions must be time-consuming (taking up more than one hour per day) and cause distress or impairment in social, occupational or school functioning.⁵⁰

Aetiology

The cause of OCD is not fully understood, but is probably multifactorial. Low levels of serotonin, genetics, copying another family member and personality type (with perfectionists seeming to be more prone) have all been implicated. Although not a cause, stressful events or trauma seem to trigger the condition. Also, OCD occurs in about 35–50% of people with Tourette's syndrome.⁴⁸

Gothelf *et al.* looked at OCD in patients with velocardiofacial syndrome (VCFS).⁵¹ In a group of 43 subjects with a mean age of 18.3 years, 32.6% of the group met the criteria for OCD. Typically the OCD was of early age onset, generally responded to fluoxetine (Prozac) treatment and was not related to learning disability. This finding may be significant in understanding the underlying genetic basis of OCD.⁵¹

Pediatric autoimmune neuropsychiatric disorders associated with streptococcal

infections (PANDAS) are a well-defined cause of OCD in children. The findings of a study by Bodner *et al.* suggest that streptococcal infection may also be linked to sudden onset of OCD in adults.⁵²

OCD usually responds well to medical treatment such as fluoxetine and/or exposure-based psychotherapy used for desensitisation.⁵³

OCD and dental behaviour

Although there is little in the dental literature related to OCD, the dental team are likely to come across children, adolescents and/or young adults with the condition. Friedlander claims that children suffering from OCD frequently manifest bizarre behaviours that contribute to the development of oral pathology.⁵⁴ Where unusual oral manifestations are seen, this is a differential diagnosis that needs to be kept in mind. Also, the medications used in management of OCD can cause xerostomia and compound the magnitude of oral disease, as well as requiring rigorous prevention to be put in place.⁵⁵

Where obsessions are related to fear of germs and dirt, oral hygiene behaviour may be compulsive, leading to tooth wear. Brushing teeth a certain number of times, for example five times after every meal, or counting to a certain number during brushing are examples of oral behaviour that have been reported in OCD.⁵⁶ Locker *et al.* found that high rates of psychological disorder (including OCD) are characteristic in young adults with high levels of dental anxiety, and that high rates of psychological disorder were related to the maintenance of dental anxiety over time.⁵⁷ This interaction is important, as not only may dental anxiety be related to the behaviour of the young person with OCD who is trying to cope in the dental setting, there is also a chance that dental anxiety could trigger OCD in the predisposed individual.

It is unlikely that the new graduate will have experience in managing this group of patients and it is important for them to understand the clinical signs and symptoms of OCD and how behaviour might impinge on oral health.⁵⁸

3. Bipolar disorder

Bipolar disorder (BD) is a category of mood disorders defined by the presence

of one or more episodes of abnormally elevated mood, clinically referred to as 'mania'. Individuals who experience manic episodes also commonly experience depressive episodes or symptoms. These episodes are normally separated by periods of normal mood, but in some patients, depression and mania may rapidly alternate, known as rapid cycling. The disorder has been subdivided into bipolar I, bipolar II and cyclothymia, based on the type and severity of mood episodes experienced.⁵⁹ The unusual swings in a person's mood, energy level and ability to function can be dramatic, causing difficulties in many aspects of life, including keeping a job or finishing school. Episodes of illness are associated with distress and disruption and a relatively high risk of suicide.⁶⁰

It is estimated that BD occurs in 1% to 3% of the population and in 1% of the population under the age of 20.⁶¹ However, disorders in the bipolar spectrum may affect 4-6% of the population. Typically it develops in early adulthood or in late adolescence, but first symptoms can occur in childhood or later life. It is believed that up to a third of children and adolescents with depression may actually be experiencing the early onset of bipolar disorder.⁶² Onset of symptoms generally occurs in young adulthood.

Aetiology

There is no single cause for BD and a combination of biologic, genetic and environmental factors appears to trigger and perpetuate the chemical imbalances in the brain that shape this complex disorder. Among the biologic factors observed in BD are oversecretion of cortisol, excessive influx of calcium into brain cells, abnormal hyperactivity in parts of the brain associated with emotion and movement co-ordination, and low activity in parts of the brain associated with concentration, attention, inhibition and judgment. There is a strong genetic element to BD. When one parent has it, the risk to each child is 15-30%, but when both parents have BD, the risk increases to 50-75%. The risk in siblings and fraternal twins is 15-25% but the risk in identical twins is approximately 70%.⁶² Viruses have also been considered in the aetiology of

BD, in particular Borna virus (known to cause serious central nervous system injuries in animals) and herpes simplex virus 2 (HSV-2).⁶²

Diagnosis

BD can be difficult to detect because of its dual nature and it is common for people to be incorrectly diagnosed with depression.⁶² It also shares many of the signs and symptoms associated with other psychiatric illnesses such as anxiety disorders and schizophrenia, further complicating diagnosis.⁵⁰ Diagnosis is based on the person's self-reported experiences as well as observed behaviour. The *Mood disorder questionnaire* (MDQ) provides a checklist that can help to determine if someone has common symptoms of BD.⁶³ Most adolescents with untreated BD abuse alcohol and drugs, and it is recommended that any child or adolescent who abuses substances should be evaluated for a mood disorder.⁶²

Clinical features

People with BD experience dramatic mood swings, ranging from being extremely 'high' to feeling very depressed, sad and hopeless, then moving back again to the 'high' state, often with some periods of normal mood in between. Besides these mood changes, there are also severe changes in energy and behaviour. The periods of highs and lows are known as episodes of mania and depression, which have very different and recognisable symptoms. The signs and symptoms of manic and depressive episodes are set out in Tables 5 and 6, respectively.⁵⁹

Severe episodes of mania or depression can include the symptoms of psychosis, with hallucinations and/or delusions. The type of psychotic symptom reflects the mood. For example, during a manic episode, people may believe themselves to be a person with special powers or wealth, whilst during a depressive episode they can believe themselves to be worthless or guilty of some crime.

Mixed bipolar state exists when the symptoms of depression and mania happen together. People are often agitated, have trouble sleeping and may even develop psychosis or have suicidal thoughts. They may feel sad but at the same time feel very energetic.

Table 5 Signs and symptoms of a manic episode of bipolar disorder

Signs and symptoms of a manic episode can include:
• An increased level of energy and activity, often restlessness
• Excessively 'high', overly good and euphoric mood
• Extreme irritability
• 'Racing' thoughts, talking very fast, moving from one idea to another
• Difficulties in concentrating, easily distracted
• Reduced need for sleep
• Unrealistic beliefs in own abilities and powers
• Poor judgement
• Periods of spending large amounts of money
• Increased sexual drive
• Abuse of drugs, particularly cocaine, alcohol and sleeping medications
• Provocative, intrusive or aggressive behaviour
• Patients deny that something is wrong.

Table 6 Signs and symptoms of a depressive episode of bipolar disorder

Signs and symptoms of a depressive episode can include:
• Lasting sad, anxious or empty mood
• Feelings of hopelessness or pessimism
• Feelings of guilt, worthlessness or helplessness
• Loss of interest or pleasure in activities once enjoyed, including sex
• Decreased energy, a feeling of fatigue or being 'slowed down'
• Difficulties in concentrating, remembering things or in making decisions
• Restlessness or irritability
• Sleeping too much, or not able to sleep
• Changes in appetite and weight loss or gain
• Chronic pain or other symptoms that are not caused by physical illness or injury
• Thoughts of death or suicide, or suicide attempts.

Management

There are two stages of treatment for BD: the acute phase, aimed at ending the current manic, hypomanic, depressive, or mixed episode state; and the preventive or maintenance phase, where treatment is continued on a long-term basis to prevent future episodes occurring.⁶² The three basic elements of treatment are:⁶²

1. *Medication* – necessary for nearly all patients during acute and preventive phases
2. *Education* – crucial in helping patients and families learn how best to manage BD and prevent its complications
3. *Psychotherapy* – to help patients and families deal with disturbing thoughts, feelings and behaviours in a constructive manner.

Electroconvulsive therapy (ECT) may be used if other therapy is ineffective, and can be very effective for severe depressive or manic episodes. In serious cases where there is risk to self and others, involuntary hospitalisation may be necessary.⁶²

The mainstay of medication is a group of drugs referred to as 'mood stabilisers', a group of unrelated medications used to prevent relapses of further episodes, eg lithium and sodium valproate. Atypical antipsychotic medications, sometimes called neuroleptics, in particular olanzapine, are used in the treatment of manic episodes and in maintenance. Benzodiazepines may be valuable to promote better sleep in people with insomnia and are used on a short-term basis to avoid addiction.⁶²

Psychosocial treatments can lead to increased mood stability, fewer hospitalisations and improved functioning. They include: cognitive behavioural therapy to help change inappropriate or negative thought patterns and behaviour; psycho-education to teach people about the nature of the illness and how to recognise signs of relapse; and family therapy to manage the stress that is often present within the family of people with BD.⁶²

Without treatment, BD tends to worsen over time, with the manic and depressive episodes becoming more severe and more frequent. Treated adequately, most people with BD can lead a healthy and productive life. Strategies for managing BD include managing the triggers for episodes of mania or depression, for example the avoidance of stressful situations, the avoidance of drinking too much alcohol or taking recreational drugs, and ensuring that medication is taken regularly.⁶²



Fig. 6 Extensive dental caries in a patient with mental health problems

Implications for oral health

The dental team is likely to come across patients with BD in everyday practice, so it is important that they understand the features of the condition and the effects both it and its treatment can have on oral health. The depressive phases of BD, which can leave a person feeling worthless, sad and lacking in energy, are times when a healthy diet and oral hygiene may be given a low priority. Paradoxically, the increased energy of manic episodes may not be of benefit to oral health as the energy is not always focused and there can be difficulties in concentration and poor judgement. This is a time when there can also be misuse of recreational drugs and alcohol, which can also have a negative impact on oral health. Depressive episodes can also be associated with chronic pain or other symptoms for which there is no organic cause. Atypical facial pain may be one such presentation.

A number of papers refer to the oral complications of BD and side-effects of its pharmacological management (particularly lithium) resulting in poor oral hygiene,⁶⁴⁻⁶⁶ accumulations of supra- and sub-gingival calculus,⁶⁶ increased periodontal disease,⁶⁷ increased and sometimes extensive caries (Fig. 6),^{64,66,67} numerous missing teeth⁶⁶ and xerostomia.⁶⁴⁻⁶⁸

Dental management

Information regarding oral health should be provided to the person with BD as early as possible in their treatment. They should be made aware of the xerostomic effects of the drugs used in

managing BD and the resultant effects this can have on the dentition. The local community mental healthcare team also needs to be informed of these issues so that oral health is included in the single care plan. At the individual level, patient motivation in the maintenance of daily oral hygiene may be difficult, particularly in the depressive episodes of BD. However, where BD is controlled, motivation is not such an issue and effective oral hygiene instruction and monitoring of effectiveness of oral hygiene practice should be provided.

Even in well controlled situations, xerostomia as a consequence of medication is the greatest concern as drug treatment is lifelong. Rigorous preventive dental programs, including the use of artificial saliva products,⁶⁴ mouthwashes⁶⁴ and topical fluoride applications,⁶⁴ in addition to the treatment of candidiasis when present,⁶⁴ need to be instigated as soon as possible. An earlier article in this series provides more detailed information about the preventive measures available.⁹

To avoid adverse drug interactions with any usually prescribed psychiatric medications, it is advised that the *British National Formulary* is consulted to review up-to-date advice before prescribing antibiotics, analgesics and sedatives.⁶⁵

The majority of people with BD will be able to give the informed consent required for dental treatment. Where this is not the case, the Mental Capacity Act (2005) should be complied with.⁶⁹ An earlier article in this series addresses the issue of informed consent and capacity.⁷⁰

C. SEXUAL ABUSE

Recent investigations have shown associations between childhood and adult traumatic experiences (such as physical, emotional or sexual abuse, incest or neglect) and physical health outcomes such as obesity, chronic pain, somatic disorders, gastro-intestinal disease and agoraphobia.^{71,72} Sexually abused women have been found to be three times more likely to develop an eating disorder⁷³ such as obesity, bulimia or anorexia. Similar associations with eating disorders have also been reported in men who have suffered childhood sexual abuse (CSA).⁷⁴ Furthermore, depression, self-harm, suicidal thoughts, early onset of bipolar disorders and increased alcohol and drug abuse is more common in this group.^{75,76} Reliable evidence suggests that up to 13% of females and between 5-10% of males have been exposed to CSA involving penetration.^{77,78} These figures increase to 30% of females and 15% of men when less intrusive forms of sexual abuse are included.^{77,78} Children who have disabilities are especially vulnerable to abuse.⁷⁹

In view of the prevalence of CSA, dentists are probably treating patients with such a history several times a week. It is important for the dental team to have insight about how to work with these patients,⁸⁰ how to communicate with them and how to integrate their special needs (such as increased control, adequate anaesthesia and reduction of fear) into their oral healthcare plan.⁸¹

Dental anxiety

Associations between consequences of CSA and dental anxiety and neglect are still in their infancy but are starting to be reported in the dental literature.^{22,71,80-83} As yet, most of the studies are relatively small, no doubt diminished by rare disclosure to dentists and repression of CSA experiences,⁸³ but clearly women with a high degree of dental fear are more likely to have been victims of trauma (childhood neglect, sexual molestation or rape),⁸⁰ with up to 34% of them reporting a history of childhood molestation, attempted rape or incest.⁸¹

Parallels have been drawn between the long-term effects of CSA and the specific factors that lead to increased stress

during dental treatment.⁸¹ They include fear of being trapped in the dental chair, being in a horizontal position, feeling claustrophobic, being alone with someone more powerful, loss of control and anticipating or experiencing pain.^{71,83,84} Additionally, the oral cavity is a frequent site of CSA⁸⁵ and while visible signs of CSA involving the oral cavity are rare,⁸⁶ their emotional significance has a long-lasting impact.⁸³ Willumsen reported that 75% of women who have reported abuse that included oral penetration had high levels of dental fear.^{22,83} The ability of these individuals to accept minor or major discomfort associated with instruments in the mouth was reduced and feeling unable to breathe and/or severe gagging or choking interfering with treatment delivery were increased.⁷¹ It is also important to note that men who have experienced CSA are more likely than women to have experienced abuse involving oral sex.⁸⁷

People who survive CSA develop coping strategies,⁸⁰ for example women may ensure that all necessary services are provided by other women and they may become over-protective of their children, unable to leave them with others as they trust no-one.⁸² It is well reported that, although often suffering from poor self-esteem and confidence, they need total control in stressful situations to be able to cope.^{22,71,83} Dealing with dental treatment is difficult for all the reasons mentioned, plus the fact that the experience may provoke symptoms of post-traumatic stress, flashbacks and dissociation.⁸¹ Interestingly, women who report dental fear and sexual abuse are often unaware that their dental fear may be related to the CSA. Instead they associate it to a 'shameful' experience such as fighting the dentist, a panic attack or running out of the surgery as an adolescent and then developing fear as a conditioned response.^{22,81}

Dental treatment

Dentists meeting anxious patients who do not fit into any of the usual anxiety categories^{22,83} should consider CSA as a possibility. Patients are unlikely to admit a history of CSA, but dentists who adjust their approach to the specific needs of this group can contribute

to a positive patient experience with far reaching effects.⁸⁰

Most surveyed survivors of CSA report that they prefer *not* to be asked directly about their history and it is more appropriate and helpful to ask non-specific questions such as 'Is there any particular part of the dental treatment that is difficult for you?' or 'Is there anything we can do to make you feel more comfortable?' This kind of task-focused question allows the individual to respond in a manner appropriate to her/his comfort level.⁸⁰

Management strategies need to account for the patient's characteristic need for control,⁸⁰ their defensiveness and fear of being criticised, and their tendency to cancel appointments at the last minute.⁷¹ Some dental fears are easy to spot and explore. Patients willingly disclose that they fear the drill or have a fear of choking, but other factors such as lack of trust or negative reactions to physical intimacy may be more difficult to divulge.⁸³ Common examples of crisis triggers include the smell of aftershave, or the smell of latex gloves which may evoke flashbacks to the smell of condoms.⁸⁰ The latter can be resolved by using vinyl gloves. Other simple actions such as leaving the door open, allowing children to remain in the surgery rather than out of sight and maybe not treating in the fully supine position, allowing the person to keep one foot on the floor, etc, may be all that is needed to allay fears and provide treatment successfully.⁸⁴

Treatment in the supine position is likely to be accepted more easily if it is explained that it affords better visibility.⁸⁰ Stalker showed that the increased need for control can also be satisfied by asking the patient's permission to perform a procedure, explaining it in detail, giving clear stop signs, allowing the treatment to be watched in a mirror and/or allowing a trusted person to observe.⁸⁰ Some patients make seemingly difficult or unreasonable demands, such as the refusal to be sedated or receive a general anaesthetic without someone they trust being in the room throughout the procedure. This requires a level of compassion and understanding that some victims of CSA were fed tranquilisers or sedatives by their abusers.⁸²

Whilst expecting a realistic evaluation of their dental health, they may become upset at a tone of voice that is scolding or condescending. CSA survivors fear being reprimanded or judged about the state of their teeth. At the same time, it is important to avoid paternalistic behaviour or coercion where the professional often assures the survivor, as that is what their abusers did.⁸⁰ Deliver the message, even if it is bad news, in a matter-of-fact manner and endeavour to give the control back to the individual by asking 'How can I help you to take better care of your teeth?'⁸⁰

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