Disordered eating and body image in adolescents with type 1 diabetes

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The period of adolescence and a diagnosis of type 1 diabetes (T1D) both represent times when there is an increased risk of mental health issues (National Institute for Health and Care Excellence, 2016). Additionally, adolescents with T1D – especially females – are at an increased risk of developing eating disorders or disordered eating behaviour (DEB) than their healthy peers (Hanlan et al, 2013; Hastings et al, 2016). The World Health Organization (2019) highlights the importance of meeting adolescents’ health and developmental needs and providing an anticipatory service that considers both biological and gender-based differences. This article explores the links between body image and DEBs in the T1D adolescent population to raise awareness of the issue and consider how practice could be improved.

Terminology

The term ‘eating disorder’ is a clinical diagnosis that encompasses a range of behaviours related to food, including skipping meals, self-induced vomiting, negative body image and DEBs. ‘DEB’ is more of an umbrella term to describe a variety of disturbed eating behaviours including binge eating and diet restrictions. In people with T1D, a further problematic behaviour is the intentional omission or restriction of insulin, which can be used to control weight (Araia et al, 2017).

While there is increased recognition of eating disorders as a mental health issue, DEB is not given the same attention or clinical diagnosis. The two terms seem to be used interchangeably for a variety of behaviours, however there is a significant difference between a diagnosed eating disorder and DEB in severity and frequency of occurrence (Hanlan et al, 2013; Woodfield, 2017). Regardless of the terminology used, these behaviours result in increased risk among people with T1D as they have a significant impact on blood glucose levels, leading to both long- and short-term complications for adolescents (Racicka and Brynska, 2015), see Table 1.
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Challenges of adolescence

Adolescence is a time of increased independence and part of the transition can include an increase in risky behaviours, such as smoking, alcohol use and unhealthy dietary behaviours (Hanlan et al, 2013), see Figure 1. During adolescence the additional burden of T1D heightens focus on dietary intake, portion precision and carbohydrate counting, adversely affecting attitudes and feelings towards food and eating behaviours (Araia et al, 2017). Many theoretical perspectives propose an association between body and self-image, and there is evidence that body dissatisfaction increases during adolescence and is partly linked with body changes (Vilhjalmsson et al, 2012).

Diabulimia: a dangerous and under-recognised condition

‘Diabulimia’ is a term coined by the media to describe DEB in people with (primarily) T1D (National Eating Disorder Association [NEDA], 2018; Diabetes UK, 2019). This dangerous practice involves intentionally reducing, skipping or stopping insulin in order to lose weight with life-threatening consequences. The development of autonomy and self-care during the adolescent period – alongside a greater use of insulin pumps – can lead to suboptimal diabetes control, as the use

![Figure 1. Adolescents with diabetes are a high-risk group](image-url)
of insulin pumps can make insulin misuse easier. Although excellent for long-term outcomes when used effectively, incorrect use increases the risk of diabetic ketoacidosis (Hanlan et al, 2013). This is because fast-acting insulin delivered by the pump is usually the only insulin given and there is a lack of longer-acting insulin in the body to act as a ‘safety net’.

The NEDA (2018) states that – while the body is very resilient and people can function normally with raised blood glucose – the control of weight through the manipulation of insulin levels can lead to irreversible long-term damage. The Association further states that, even in the absence of obvious problems, skipping insulin regularly can shorten life expectancy by 13 years (NEDA, 2018). However, adolescents may not consider the long-term impact of their behaviour. This is a result of biological changes that lead to a perceived invulnerability (Nightingale and Fischhoff, 2001). This means that the long-term risks associated with certain behaviours (see Table 1) are underestimated, leading to an increase in risky health behaviours.

While society is becoming more aware of mental health issues in young people, diabulimia is not generally recognised as a mental health condition and there is limited understanding. Therefore, healthcare professionals and family members do not have the information they need and are unlikely to look for and recognise signs of diabulimia. Yet this is a serious concern, given that 4 in 10 young women and 1 in 10 men aged 15 and over admit to skipping insulin to lose weight (Diabetes UK, 2019). The various physical and emotional/behavioural signs of diabulimia are listed in Table 2.

### Table 2. Signs and symptoms of diabulimia (NEDA, 2018)

<table>
<thead>
<tr>
<th>Emotional and behavioural</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing neglect of diabetes management</td>
<td>HbA1c ≥ 9.0% on a continuous basis</td>
</tr>
<tr>
<td>Secrecy about diabetes management</td>
<td>HbA1c inconsistent with meter readings</td>
</tr>
<tr>
<td>Avoiding diabetes-related appointments</td>
<td>Unexplained weight loss</td>
</tr>
<tr>
<td>Fear of low blood sugars</td>
<td>Constant bouts of nausea and/or vomiting</td>
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<tr>
<td>Fear that ‘insulin makes me fat’</td>
<td>Persistent thirst and frequent urination</td>
</tr>
<tr>
<td>Extreme increase or decrease in diet</td>
<td>Multiple diabetic ketoacidosis episodes</td>
</tr>
<tr>
<td>Extreme anxiety about body image</td>
<td>Low sodium and/or potassium</td>
</tr>
<tr>
<td>Restricting certain foods or food groups to lower insulin dosages</td>
<td>Frequent ketoacidosis episodes</td>
</tr>
<tr>
<td>AVOIDS eating with family or in public</td>
<td>Irregular or lack of menstruation</td>
</tr>
<tr>
<td>Discomfort testing/injecting in front of others</td>
<td>Deteriorating or blurry vision</td>
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<tr>
<td>Overly-strict food rules</td>
<td>Fatigue or lethargy</td>
</tr>
<tr>
<td>Preoccupation with food, weight and/or calories</td>
<td>Dry hair and skin</td>
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<tr>
<td>Excessive and/or rigid exercise</td>
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<tr>
<td>Increase in sleep pattern</td>
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<tr>
<td>Withdrawal from friends and/or family activities</td>
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<tr>
<td>Depression and/or anxiety</td>
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<td>Infrequently filled prescriptions</td>
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### Hurdles to optimum treatment

Hastings et al (2016) and McNicholas et al (2016) assert that individuals with eating disorders are routinely stigmatised by health professionals, being viewed as challenging and perceived as difficult to treat. Tierney et al (2009) highlight that this is also the case with patients who have diabetes, therefore those presenting with both conditions may be further disadvantaged.

An additional complication in this population of patients is that the treatment for eating disorders and that for optimum diabetes management have conflicting goals that are a source of potential
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Therefore, if diagnosed with an eating disorder, individuals with T1D tend not to respond to standard treatment. Adolescents with T1D and DEB are also at a higher risk of serious complications related to glycaemic control, which needs to be more fully understood. Recovery rates are lower in this population, which suggests another approach is required that encompasses the more complex needs of this patient group.

Recovery could be further hindered due to a lack of professional awareness and poorly-tailored health services, demonstrating the need for a more bespoke provision.

Troncone et al (2018) found that a significant indicator for the development of DEBs is the degree of body dissatisfaction experienced. This impaired perception of body size and degree of body dissatisfaction could be due to the greater emphasis on the body for young people with T1D. Normal changes in the body during adolescence, the influence of social media, the effect of T1D and insulin therapy on the body, and the pressure of managing the condition may all exacerbate concerns around body image. Given the potential consequences for adolescents with T1D who display DEBs, service providers should be more vigilant, even when young people appear to be below the threshold for clinical diagnosis in terms of symptoms and weight loss. This is particularly important as DEBs often begin during adolescence and, if they remain unidentified and untreated, they increase in severity over time (Hanlan et al, 2013).

Tackling DEBs in practice

There are various training needs and ways in which practice can be improved, see Box 1. However, there are several steps that can be taken to improve the recognition and support that adolescents receive. Assessment and identification of body image dissatisfaction/low level of self-esteem may be useful in the development of early intervention strategies at diagnosis. This may include early screening for risk factors (see Box 2), early intervention where there is a higher risk (see Box 3) and – where possible – prevention.

There are several tools that can be used to assess body image. These include tools that do not use any visual presentation of a body image, such as questionnaires, as well as tools that use mock body images/silhouettes or distort real body images, such as distorting mirrors, video-based distortions and computer morphing software (Aleong et al, 2007).

Peer-to-peer or expert support groups may be effective in providing support and the potential for a more open discussion about the issues faced. Technology has increased the number of ways

Box 1. Suggestions for improving disordered eating behaviour (DEB) recognition and management in practice

- Better education of healthcare providers around the risk of DEB in adolescents with type 1 diabetes and how to identify and respond to these
- More specific focus on adolescents generally in terms of diabetes care – healthcare professionals should be aware of the developmental needs of this group
- Better utilisation/formation of new screening tools to assess the risk of DEB in adolescents with type 1 diabetes (considering self-esteem and body image perceptions)
- Provision of a tailored package of care in terms of early intervention once the risk of a DEB has been identified

Box 2. Examples of screening tools for assessing body image and self-esteem in children and young people

- Adolescent Body Image Satisfaction Scale (Leone et al, 2010)
- Adolescent body morphing tool (AdoBMT) (Aleong et al, 2007)
- Figure Rating Scale or Stunkard scale – appropriate for young children, older children and adolescents (Heron et al, 2013)
- Children’s Body Image Scale
- Rosenberg Self-Esteem Scale (www.socialworkerstoolbox.com/rosenberg-self-esteem-scale/)
- Adolescent Self-Esteem Questionnaire (Hafekost et al, 2017)
in which such support can be provided, eg text messages, online forums websites (eg healthtalk.org) and telehealth.

Finally, there needs to be greater awareness of the links between heightened risks in adolescence and widespread pressures that are exacerbated through social media images that might seem even less obtainable for a young person with T1D.

Conclusion

Body dissatisfaction, eating disorders and DEBs are more common in adolescents with T1D than in their healthy peers. While usually more prevalent in females, DEB should not be dismissed in males. Better awareness and training for healthcare professionals around the identification of risk factors for DEBs is needed to improve outcomes.

Box 3. Early interventions

- Having open discussions as a standard part of assessment
- Peer support
- Virtual support groups
- Psychological therapy/counselling
- Education around the dangers of insulin manipulation/binge eating
- Regular mental health involvement


